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The Queen's Speech

AGAINST a background of resolve to seek all means of encouraging increased production in order to reduce the cost of goods needed at home and by the export trades, the Queen's speech at the opening of Parliament on Tuesday formally announced the presentation of Bills for the reorganisation of the iron and steel industry and to provide for changes in the transport industry. In the subsequent debate on the Speech, the Prime Minister, Mr. Churchill, spoke of the long and continuous study given by the Government to the many difficult questions in the sphere of transport, and expressed his conviction that the prolonged discussions had been beneficial. Of the present condition of road haulage, he said he found it remarkable that "C" licences had increased to such an extent since January 1, 1948, showing that people preferred to carry their own goods, with all the restrictions it entailed, rather than avail themselves of the advantages of nationalised transport. The railways, he said, were burdened by the millstone of the price paid to shareholders on nationalisation, and he compared this with what happened in the capitalist system, under which shareholders would have had to nurse their grievances and many of their losses. Now the railways had a permanent burden fixed on them by law, on top of which were the number of restrictions on the railways' freedom in the matter of charges. The Prime Minister's remarks were no doubt conceived as a formalised introduction to the debate now impending, and a similar construction may

be placed on Mr. Attlee's comment that the transport and steel Bills would meet with resolute opposition. There is no room for a partisan approach to a subject so vital to the whole declared programme of reducing costs and stimulating production, and the announcement on the very day of the Queen's Speech that the British Transport Commission is seeking a further increase in charges gives warning that every means of furthering the commercial vitality of the railways demands urgent consideration by all parties.

British Transport Loan

THE British Transport Commission came to the market this week with its first public issue loan. Lists opened and closed yesterday for £120 million British Transport 4 per cent guaranteed stock 1972-77 at the price of £95 10s. per cent. Of the total, half is subscribed for by the National Debt Commissioners, to whom the Commission last December issued £60 million of British Transport one-year 1½ per cent stock with the right to tender this stock as payment for £60 million of the stock now issued. The other £60 million has been offered to the public for cash. The proceeds of the cash issue are required to meet expenditure on rolling stock, ships, plant, and other equipment, but it would seem that a large proportion must be devoted to railway equipment, including the large number of wagons ordered or to be ordered from outside builders. The Commission has stated on several occasions that it needs large capital sums for replacement and expansion of assets, and it doubtless would have made a public issue a year ago but for the disturbed condition of the security market at the time.

Another Freight Rate Increase?

APPLICATION has been made by the British Transport Commission to the Minister of Transport for authority to increase railway freight, dock and canal charges up to 5 per cent; no further details are given of the extent or application of this increase, and indeed this may not yet have been determined. The reasons given by the Commission for taking this step are given elsewhere in this issue. Not only the increases in wages, which are estimated to cost £18 million, but increases during 1952 in coal and steel prices and in the fuel duty have contributed to a rise in outgoings of over £32 million in a full year. These increased costs, with the loss of £2 million a year caused by the Government intervention earlier this year in the application of the approved passenger charges scheme, and the relative smallness of the amounts which next year can be set against them derived from economies and other items, have led the Commission to seek additional revenue from increased freight rates. The whole question of passenger fares, it is announced, will be brought under review.

British Railways as Host

DURING the past ten days British Railways has been host at two international gatherings. The mission of Asiatic senior railway officials arrived in this country on October 31 after visits to Italy, Germany, Belgium, and Holland. An account of their itinerary and the various functions at which they have been the guests of the Railway Executive, the Chief Regional Officers, the Ministry of Transport, and manufacturers of railway equipment is given on another page. On Monday this week the autumn meeting of the European Goods Timetable Conference opened at Church House, Westminster, when the delegates were welcomed by Mr. John Elliot, Chairman of the Railway Executive. The work of the conference is described in the following note. We are sure that all these visitors, whether occupied for much of their time by conference business or travelling widely like our guests from Asia, will make many mutually valuable contacts during their period in this country. Other parts of the world may have greater climatic attractions for some conferences, but the birthplace of public railway transport is a sufficiently appropriate venue for railwaymen to offset an occasional rainstorm. We hope that many of those visiting us now

will do so again when the next plenary session of the International Railway Congress Association is held in London in 1954.

European Goods Timetable Conference

THIS week it has been the turn of British Railways to be the host administration at the autumn meeting of the European Goods Timetable Conference, delegates to which were welcomed at the opening ceremony last Monday by Mr. John Elliot, Chairman of the Railway Executive. The number of international freight train services in connection with the North Sea and Channel train ferries, the competition offered by other forms of transport, and the necessity for securing the best possible timings between British and Continental stations for such traffic, much of it perishable, increase the importance of British Railways' participation in the international timetable conference. Unlike its passenger counterpart, which now meets annually, though it met twice yearly before 1914, the European Goods Timetable Conference meets twice a year. The fact that the President, Mr. A. Houska, is a senior officer of the Czechoslovak State Railways, and that that system is the managing administration of the conference, shows the meetings to be international in the truest sense, and the work of the European railways as freight carriers to be largely independent of political considerations.

Peruvian Corporation Moratorium

HOLDERS of the first mortgage debentures of the Peruvian Corporation Limited have received notice of a Scheme of Arrangement to extend the existing debenture moratorium until December 31, 1953, or to a later date not after December 31, 1955. The explanatory circular reviews the factors that have precluded formulation of a permanent scheme, notably the unsettled situation created by the revolution in Bolivia last April. Very heavy demands have been put forward by the Corporation's Bolivian railway staff for increases in wages, salaries, and other benefits; and it is said that the maintenance of discipline among such staff is proving nearly impossible. The importance to the corporation of stability in Bolivia is increased by the fact that international traffic between Bolivia and the Pacific Coast is paid for in the main in Bolivian currency. An increase of up to 50 per cent is impending in the price of fuel oil in Peru, and demands for a 50 per cent rise in wages were put forward by workers on the Central Railway, although reduced to 20 per cent by Government intervention. The directors regret that a permanent scheme is impracticable at the moment, but will submit one without waiting for the moratorium to expire if conditions improve.

Training Engineers from Latin America

THIS week the British Engineering Training Mission to Latin America has issued its report on its investigations in nine countries of the scope for offering practical training in Great Britain to their engineering graduates. The mission was authorised last January by the Federation of British Industries with the full support of the Government. Its members found few facilities in the countries visited for giving graduates practical experience, and it is urged that a scheme should be built-up here on a national scale as soon as possible, because already there is a tendency for men to seek such experience in other European countries. Nearly all the countries on the itinerary have assets awaiting development with the help of railways, roads, and power, and the advantages of first-hand experience of British products need no emphasis. At present fifty scholarships are being offered of values between £950 and £300. Although no formal approach has been made yet to the nationalised industries, Sir Norman Kipping, Director-General of the Federation of British Industries, said at a Press conference on Monday that their co-operation would be valued highly. He envisaged, for example, graduates spending some time with a builder of locomotives or rolling stock, and then gaining experience of maintenance and operation in a railway workshop.

Retired Railway Officers' Society

THE vigorous enthusiasm with which members of the Retired Railway Officers' Association continue to follow developments in the railway industry was again demonstrated at the autumn luncheon held in London on November 4. The number of acceptances for the luncheon, which was 158, established a record in the history of the Society, and among the guests were Mr. A. T. Lennox-Boyd, Minister of Transport; three former Chairmen of the main-line railway companies; Mr. John Elliot, Chairman of the Railway Executive; and three Chief Regional Officers—an appropriate combination of present-day and pre-nationalisation management. Major-General G. S. Szlumper showed that the Society now had a membership of 182, some 14 per cent of whom were over 80 years of age, and Mr. W. M. Perts, in denying that the Society in any way catered for those on the shelf, spoke of it as a body of kindred spirits who followed current transport events and who were determined to maintain the friendships they had made before retirement.

An Outside View of Railway Organisation

AN analysis and commentary on the organisation of British Railways, which appeared in the Autumn issue of *Public Administration*, has been reprinted as a booklet. In its conclusions, it represents centralisation as a trend with a history of some eighty years, reinforced by the development of telecommunications. Proposals to strengthen the regional organisation of the railways and reduce the influence of the Railway Executive are not thought likely to lessen centralised control, because a state of affairs is foreseen in which a Commission with its staff increased by transfers from a diminished Executive would intervene more actively than before in regional affairs. This conclusion is based on the proposals made earlier this year in the White Paper on Transport and the Transport Bill, and apparently does not contemplate an increased authority and consequently greater independence for the Chief Regional Officers. The principal suggestion is that problems at district level require further research, for it is considered that the overlapping of areas in charge of different functional departments must lead to some blurring of authority and confusion of management.

The Nigerian Locomotive Situation

WHEN Chief Bode Thomas, the Nigerian Minister of Transport, spoke in London last month on the difficulties of the Nigerian Railway and the need for more rapid delivery of locomotive spares, he made the statement, which we quoted in an editorial note in our October 3 issue, that between 35 and 40 per cent of the total locomotive power of the railway lay idle in the workshops for want of spares. The figures, which have been widely circulated, could be misleading in some quarters and in fairness to the Nigerian Railway it should be understood that they cover all locomotives not in service whatever the reason, namely, those stopped for repairs or waiting for spares at running sheds as well as those in workshops. The precise percentages for the financial year 1950-51 were 36.98 for the 220 main-line locomotives and 14.68 for the 53 shunting locomotives. The phrase "lying idle for want of spares" has created an unfortunate impression, particularly when linked with figures covering locomotives stopped for normal repairs and maintenance and not necessarily abnormally delayed in their return to service.

"YP" 4-6-2 Locomotives in India

DURING the past four years the Indian Railways have introduced four new classes of locomotives for the broad and metre-gauge lines, further implementing their policy of standardisation. An article dealing with the behaviour in service of the "WP" class standard engine was published in our issue of July 6, 1951. The new series comprises classes "WP," "WG," "YP," and "YG,"

and the locomotives are required for passenger and goods operating on the broad and metre gauge respectively. The design of the "YP" class metre-gauge engine, which replaces the "YB" and "YC" classes of earlier standard design, is dealt with elsewhere in this issue. A feature of the design is the degree of interchangeability attained between corresponding locomotives within each gauge, the interchangeable components including, among others, a common boiler with its mountings, the tender, and valve gear. A further feature is the proposal to substitute steel castings for fabricated structures on some locomotives. This proposal will assist locomotive production in India materially, until such time as India is in the position to produce steel castings to meet her full requirements.

The Transport Bill

THE new edition of the Transport Bill, published while this issue was printing, embodies the result of the further consideration which the Minister of Transport, Mr. Lennox-Boyd, has given to the measure during the Parliamentary recess. The debate on the Second Reading will be heard this month, after which the Bill will be examined in detail in Committee.

There are all the indications that the new Transport Bill will be a most difficult piece of legislation for the Government to deal with. Not because of political opposition, though that is obvious, but because of the complexities of the problems presented by the policy laid down. For instance, to express the intention of denationalising road haulage is one thing; to have the task of framing legislation which will make this effective is another, particularly if there is uncertainty whether vehicles can in fact be sold or whether it accords with the wishes and needs of industry. To have a desire to revise and modernise railway law in respect of charges is praiseworthy, but it remains to be seen whether this can be effectively translated into the clauses of a Bill, bearing in mind the clash of interests affected.

Now the new Bill is available, we shall subject it to detailed examination and (if necessary) criticism, and we shall follow it through all the Parliamentary stages until it is an Act, giving our comments objectively and with regard for its effect on the railway industry which is our principal concern. We are making special arrangements to enable us to do this, and our readers may rely on the matter having constant and reliable attention.

It may be well at this stage, before we see the new Bill, to set down briefly the main ten principles which it would seem should form the basis of the Bill, or the organisation under the Bill, so far as the railways are concerned. These principles hang together.

First, no matter what types of transport are retained in State ownership or how they are organised, the whole should be governed by a board of part-time directors with a full-time Chairman and possibly a full-time Deputy Chairman. No officers, other than perhaps a Secretary, should be attached to this board. The board would then be served by the general management below it.

Second, below the board should come the central management units. There will be at least two, one for the railways and one for London Transport, and if there are more, e.g., one (perhaps temporarily) for road haulage, the principle should be the same. Finance and law should be dealt with as a common service at the management level. The central management unit for the railways should consist of a Chief General Manager, appropriate deputies and subordinate technical officers for system work. The unit should be small and consist of first-class people.

Third, the Regions should remain broadly as they now are but should be called "Railway" instead of "Region." They should be headed by General Managers, to whom all the departmental officers would be solely responsible. Instructions from the central management would go through the General Managers of the railways. The Chief General Manager, his deputies and the General Managers would meet regularly as a committee to co-ordinate and settle the general management work. The departmental technical officers would meet regularly under the chairman-

ship of the appropriate system technical officer to deal with standardisation and technical matters.

Fourth, at regular intervals, the Chief General Manager, his deputies and General Managers would meet the board to deal with current board business.

Fifth, general matters, such as charges, trade union questions, etc., should be dealt with by the central management.

Sixth, on charges, the railways should be free subject to maxima, which alone would be under the control of the Transport Tribunal. Competitive road hauliers should have no legal right to object to rail charges. There might be some general safeguard against abuse of freedom so far as traffics tied to rail are concerned.

Seventh, the railway staff should have the same safeguards as they have under the Act of 1947.

Eighth, railway catering on trains and stations should revert to the railway. The hotels should be formed into a separate company reporting to the central railway management, as also should undertakings such as Thos. Cook & Son.

Ninth, the docks and canals should be placed under railway control.

Tenth, the railways should have their own road transport restored to them on an adequate scale.

In the interests of trade and industry, of the orderly development of inland transport, and of the well-being alike of the established road operators and of the railways, we shall look for some improvements in the road licensing proposals which were in the first draft of the Bill.

Given an organisation framed on these general lines, the railways should be able successfully to compete with unrestricted private road haulage and "C" licensed vehicles. The public could expect better service on more commercial lines and development would be speeded up.

Methods of Railway Management

THE pros and cons of supreme management by committee and of the so-called functional system of organisation were discussed last week by Mr. A. J. Pearson, Chief Officer (Administration), the Railway Executive, in a talk to the Cambridge University Railway Club on methods of large-scale railway management. The L.M.S.R., he pointed out, was the first to experiment in Britain with top management in committee, this method having been introduced by Lord Stamp. Committee management in his opinion has shown itself to be less strong in practice than it looks on paper. Only a single head, he states, can give an undertaking of the vigour and character necessary for success. Against this, the number of matters needing managerial attention may be thought to exceed the capacity of one man. If this was true of the largest of the four main-line railways, the L.M.S., before nationalisation, it must be true of British Railways: it does not, however, appear to be true. It is emphasised, moreover, that the dual function of Lord Stamp as Chairman of the L.M.S.R. board and General Manager (called President) thrust an abnormally heavy burden on one man, which strengthened the case for committee management; after the death of Lord Stamp, the posts of Chairman and President were separately held, but no change was made in the committee of management, presumably because it had become an established part of organisation. Performance by management of work properly done by subordinates must be avoided, and the strong temptation resisted of doing the job far better than could be done by the subordinate—at the cost of a disequilibrium in carrying out managerial duties and of an impairment of activity which may spread through the organisation. Experience alone can impart the wisdom of restraint in this matter.

The word "functional" as applied to the functional system of organisation is, he states, a misnomer; what is really meant is departmental control from the top downwards. Mr. Pearson traces development of this type of organisation on some large systems abroad, where geographical distances have been an important factor. He draws a distinction between this departmental organisation

tion, with departmental officers at headquarters repeated or paralleled in the "regions" below, and the divisional organisation of the L.N.E.R., where the Divisional General Managers were charged with immediate conduct of the business, and the technical officers at headquarters had less responsibility though departmental control became more pronounced during the last war. Thus the L.N.E.R. was inclining towards the departmental method with the regional system of organisation.

The extension of the departmental system to the top on nationalisation, with a strong departmental element in the form of the departmental Members of the Railway Executive, was the result largely of the necessity for unification at the greatest possible speed department by department. Its obvious potential weakness, he considers, lay in the function of general management. Only if the departmental Members of the Executive fulfilled their non-departmental or general managerial as efficiently as their departmental responsibilities, was the arrangement likely to succeed.

The greatest difficulty, however, has been the position of the Chief Regional Officer, subject to departmental control from above and responsible for co-ordinating activities in his Region. "The departmental functions," he says, "throve lustily . . . but it was thought at the co-ordination level that the true function of the whole was somewhat warped and diminished." Yet it is only fair to remember that economies of £15 million a year have been effected by rationalisation over five years, as is rightly stressed, with possibilities of much greater economies to come. The defects of the present system cannot be assessed, he considers, but whatever they are they can be eliminated "by a shift in emphasis at the right time, whilst retaining the economies. The important thing is to have a carefully constructed plan of organisation, which can be worked to and developed."

In matters of finance, Mr. Pearson discusses the obligation under the Transport Act, 1947, on the British Transport Commission both to provide "an efficient, adequate, economical, and properly integrated system" of transport and, in a clause later in the text of the Act, to pay its way. The first duty of the Commission under the Act, he states, has been to give good service at the lowest possible price, which, if well done without a time-lag in adjusting transport charges to price-levels, will in time enable the industry to pay its way. "In short," he adds, "facilities and not financial results beget traffic." Much criticism of the nationalised railway system in the matter of organisation and in other respects has been caused by the time-lag in adjusting rates and fares, largely the result of the cumbersome procedure for altering charges. He might have pointed out that despite these and other handicaps, notably in wage increases and the restriction of capital expenditure on improvements, British Railways last year achieved net traffic receipts of £31.6 million.

In public relations, at the highest level of management, it is more effective if the public relations specialist stays in the background and the management speaks to the public without a trained intermediary—which necessitates, in management, a flair for public affairs. Yet the most successful men in this aspect of management are not always the most obvious. The example cited is the late Frank Pick, of London Transport, who knew much about public relations and was a fluent speaker, yet was not good in execution of this aspect of public relations policy.

The importance is admitted of personal contact in staff relations, but here emphasis is laid on the necessity for top management to contact not only the rank and file, a principle highly regarded at the present time, but the officers to whom responsibility is delegated; it is of little use addressing one's self to the workers if those in charge of them are neglected. This does not detract from the necessity for management to get out and see what is being done, and to maintain as much personal contact as possible with the lower levels of the organisation, which in Mr. Pearson's opinion can best be done by

keeping all the staff in the picture to an appropriate degree at each level about the policy and progress of the organisation as a whole.

The Berne Conventions

SIGNATURE on behalf of the United Kingdom at Berne on October 25, as recorded last week, of the revised Berne Conventions governing the transport of goods (C.I.M.) and of passengers and baggage (C.I.V.) by rail gives Governmental sanction to the arrangements between the railway administrations concerned in through traffic with the U.K.; as a consequence of this it greatly simplifies the creation of new and revision of existing goods and passenger tariffs; and it gives expression to the desire of H.M. Government to co-operate to the fullest possible extent in the development of international transport. The growth of train ferry traffic with Great Britain and the consequent necessity to apply the law of sea carriage moreover have enhanced the desirability of legalising existing through booking arrangements. This is the first time that the United Kingdom has signed the conventions, and the action of the British Government has been warmly welcomed by the other Governments and railway administrations concerned.

The conventions are not confined to any one group of States, geographical or political. The twenty nations which signed the conventions, and Additional Protocol, and the "Final Act" included nearly all those concerned in the European railway system; representatives attended of Turkey, whose extensive railway network in Asia Minor is linked with Europe by the Bosphorus wagon ferry, and of all the Iron Curtain countries except the U.S.S.R.; some States in the Near East were invited, but were not represented; and the participation of Germany, at least of the Western German Federal Republic, whose present status presents difficulties, is probably, as appears below, simply a matter of time. The conventions therefore are in the fullest sense international.

The C.I.M., C.I.V., Additional Protocol, and Final Act were subscribed to by representatives of the twenty Governments on the last day, October 25, of the Fifth Divisional Conference of the Berne Conventions. Mr. Denis O'Neill, an Under Secretary of the Ministry of Transport, signed for the United Kingdom, whilst transport interests were represented in the British delegation by Mr. G. S. M. Birch, Legal Adviser to the British Transport Commission, and Mr. L. H. K. Neil, Continental Traffic Manager, Eastern and North Eastern Regions. The necessity of applying the law of sea carriage in through bookings with Britain has been a main obstacle to previous signature of the conventions by H.M. Government, but the opportunity was taken at the Conference to incorporate provisions as to sea transport.

The Additional Protocol records that at the closure of the revision of the two conventions the conference made certain decisions. The first of these empowers the Swiss Government, which at present provides the central office of the conventions, to draw up new regulations providing for supervision of the central office on lines analogous to those of other international organisations such as the Universal Postal Union, of which the member States have a more direct part in the details of management. To this end, an Extraordinary Conference is to be convened, which is also to seek a solution to the problem of German participation mentioned above. Another decision of the conference provides for carriage by sea of dangerous goods to and from Great Britain which must comply both with the present provisions of the C.I.M. and with British law until a special appendix is drawn up providing for derogations as regards British law. Note was taken of the refusal of the Iron Curtain signatories, Bulgaria, Czechoslovakia, Hungary, Poland, and Roumania, to recognise as obligatory the dispositions of both conventions as to settlement of differences by arbitration. The Final Act formally records the proceedings and their preliminaries, and lists the States party to the previous

Revisional Conference in 1933 beside those invited to the 1952 conference.

There seems to be no serious obstacle to ratification of the Conventions by the Governments concerned and to their coming into force on January 1, 1954. On the British side, implementation, under the present organisation of nationalised transport, would seem to necessitate a formal request by the Minister of Transport to the B.T.C., which in turn through its Legal Department would call for a meeting of the Railway Executive Continental Traffic Committee to determine the necessary practical measures.

The Eastern Region

(By a North Eastern Correspondent)

THE Eastern Region of British Railways is substantially the Southern Area of the London and North Eastern Railway, with adjusted boundaries. Excrescences on the western side of the Area have been lopped off, while the London, Tilbury and Southend lines on the north bank of the Thames have been tacked on. The Liverpool Street headquarters has no longer any interest in the territory of the former Cheshire Lines Committee, but now controls the whole of the railways in East Anglia. At the end of 1951 the Eastern Region's road mileage was 2,901, the track mileage of 5,568 being 191 per cent of the length of road. Sidings made up another 2,477 miles of track, equivalent to 85 per cent of the length of road.

The North Eastern Region is equipped on a more liberal scale with extra running lines and sidings. There the percentage of track to road mileage is 202 and of sidings, expressed as single track, 106. As the density of traffic in the Eastern Region is fully 50 per cent above the density in the North Eastern, its operating results are bound to suffer from the comparative lack of traffic facilities. Of the 143 marshalling yards in the Eastern Region some are cramped and old-fashioned, but the spacious Whitemoor yards at March were the first in this country to be mechanised. The up yard, equipped with Frolich brakes in 1928, was the model for the new inward yard at Hull, opened in 1935. The yard constructed at Mottram, near Manchester, to deal with down traffic, is a good example of the use of gravity for shunting. The North Eastern Railway perfected that method of working at Shildon and Tyne Dock round about 1860 and of the 95 yards in the North Eastern Region today, 21 are shunted by means of "humps" or gravity.

A survey of the work done by the Eastern Region in 1951 shows that it originated 45,966,000 tons of traffic, 16 per cent of the total tonnage arising on British Railways. That was an increase of 751,000 tons (1.7 per cent) on 1950. The Region worked nearly 4,669 million ton-miles, about 20 per cent of the British Railways total ton-mileage. That involved the movement of 201 million more ton-miles than in the previous year, a rate of increase of 4.5 per cent compared with an advance of 3.5 per cent for the whole railway system. In the first 36 weeks of this year, the Eastern Region again raised its ton-mileage by 17 million, though the all-line output of ton-miles was 296 million less. Over the same periods of time the North Eastern Region's forwardings slipped back a little, but in 1951 it still originated 22.5 per cent of the total traffic. The Region is a great coal carrier. About 70 per cent of its tonnage consists of coal and coke, compared with 58 per cent in the Eastern Region. Much of the North Eastern's coal moves for short distances, especially when it is passing to shipping places in Northumberland and Durham, with the result that the Region worked only 10 per cent of the total ton-miles of British Railways last year.

The growing volume of freight movement means that the Eastern Region is not merely marking time. For every freight train-mile worked by the North Eastern in 1951, it ran one and three quarters. Its total of 27,112,000 freight train miles was 19 per cent of British Railways aggregate. For the first 36 weeks of 1952 that aggregate decreased by 465,000, but the Eastern Region worked 163,000 more freight train miles and the North Eastern 184,000 more. Until September 7 there was a liveliness on the eastern side

of the country which improved the general level of traffic statistics. The table below compares 5 all-line averages with the Eastern and North Eastern Regional results for 1951 and the 4-week period to September 7, 1952.

Statistical average	Year 1951			4-week period to September 7, 1952		
	All-line	E.R.	N.E.R.	All-line	E.R.	N.E.R.
Wagon load at starting point (tons) ...	8.46	8.72	10.26	8.56	8.82	10.41
Train load (tons) ...	162	172	157	154	163	154
Ton-miles per train engine-hour ...	1,107	1,224 (+10.5)	1,399 (+26.0)	1,147	1,267 (+10.4)	1,481 (+29.1)
Wagon miles per train engine-hour ...	222	243 (+9.4)	266 (+19.8)	231	253 (+9.5)	282 (+22.0)
Freight train speed (m.p.h.) ...	8.30	8.47 (+2.0)	10.26 (+23.0)	9.03	9.17 (+1.5)	11.04 (+22.2)

In setting out the last three items in the table, figures in brackets have been placed under the regional averages to indicate the percentage excess over the all-line results. Clearly the Eastern Region moved substantial and growing volumes of freight traffic efficiently, though it could not match the mobility of the North Eastern. The demands on the resources of the two Regions differed widely and the Eastern did not possess the reserve capacity of its northern neighbour. It carried, too, a large passenger traffic, originating 164,452,000 journeys in 1951, or 16 per cent of the total number on British Railways, and working 35,344,000 steam coaching train miles, or nearly 19 per cent of the all-line mileage. Roughly speaking, the Eastern Region performs three times the amount of passenger business done by the North Eastern, but runs its average steam coaching train a mile an hour slower. It maintains the Great Eastern Railway's faith in developing Continental services through Harwich for both passengers and goods. In particular it keeps the Zeebrugge train ferries—the first to ply across the North Sea—close to schedule and handles their cargoes with despatch.

More than 40 years after the North Eastern Railway electrified its North Tyneside lines, the Eastern Region recently completed a pre-war plan for using electric traction between Liverpool Street and Shenfield. It now runs about 40,000 electric passenger train-miles every week and has developed suburban travel considerably. A larger scheme, involving the conversion of the Manchester-Sheffield-Wath lines across the Pennines, is being carried out gradually. In February, 19 miles of electrified lines between Wath and Dunford Bridge were opened for freight working, but some time will elapse before the western section of the scheme is completed. All railwaymen will hope for the ultimate success of this experiment in main-line electrification—the first to be made in Great Britain for handling both freight and passenger trains—but pre-war estimates of an adequate return on the capital expenditure may be hard to realise in existing conditions. In the application of electric power to signalling and route setting, the Eastern Region has not carried out any work so spectacular as the new installation at York. The system of electronic automatic train control in use on the L. T. & S. Section has, however, been much in the news of late.

Necessarily the Eastern and North Eastern Regions are in constant touch as partners in the East Coast route to the North. In co-operation they quickly restored mobility to their route after the bad patch which slowed down movement on British Railways in the winter of 1950-51; they have carried on since without fuss or bother. To a North Eastern observer, the Eastern Region appears to be managed with a judicious mixture of enterprise and equanimity. He senses an openminded approach to new problems and a readiness to welcome suggestions, combined with a firm adherence to opinions formed in the light of the best available facts and statistics. That is not surprising when one considers that the Chief Regional Officer and quite a number of his colleagues were trained on the principles adopted by the North Eastern Railway in 1909 and extended to the L.N.E.R. staff on the 1923 amalgamation.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Rail-Bus Connections

October 11

SIR,—I was interested to read in your September 12 issue Mr. D. W. Mountain's observations on the paucity of information relative to bus connections which is given in the regional railway timetables.

The Southern Region probably assists passengers in this direction more than the other Regions by listing the areas served by connecting bus undertakings, quoting the addresses of the head office concerned, and by giving details of ticket interavailability between rail and road.

However, one cannot help being struck by the apparent reluctance to refer to services operated by London Transport in this list. Surely the reference in railway publications to the areas served by this undertaking, with the address of its head offices, would be of great assistance to the travelling public generally and to visitors from overseas in particular.

Yours faithfully,

N. E. NORMAN

c/o Nyasaland and Trans-Zambesia Railways,
Limbe, Nyasaland

no means always committed by railway servants, and indicated that at Christmas time, and other rush periods, agents of thieves were deliberately infiltrated into the industry among additional temporary staff.

The trade unions have always been interested in this problem, and have repeatedly drawn the attention of the staff to claims due to lost, stolen, and pilfered goods.

Earlier this year wide publicity was given to this matter, when the figures showed that out of over 28,000 persons prosecuted for theft from British Railways in the years 1948 to 1951, only slightly more than 7,000 were railway servants. Nearly 21,000 were members of the public. These figures amply prove the falsity of your correspondent's allegations about pilfering. As for idleness, he might look at the productivity statistics for British Railways.

The great body of railwaymen, while deploring any losses and the dishonesty of the minority in their midst, deeply resent such innuendos made by Sir Michael Peto.

Yours faithfully,

J. B. FIGGINS,
General Secretary

The National Union of Railwaymen,
Unity House, Euston Road, N.W.1

Publicising Nationalised Industries

October 30

SIR,—Sir Michael Peto's criticism, in your issue of October 24, of the policy of the *British Railways Magazine* scarcely does justice to the facts. Surely it is the duty of any house organ to lose no chance of praising the staff where circumstances warrant it, but we have never been afraid to face the less creditable side of the picture. As evidence of this, I may quote the feature article, "Serving the Public," by "The Man on the Line" in the October, 1952, issue to which you drew attention last week; and to a leading article on claims published in our issue of May, 1950, which quoted several cases of prison sentences on railwaymen for thefts in a strong condemnation of an "anti-social" degrading racket.

Yours faithfully,

D. S. M. BARRIE,
Public Relations Officer

The Railway Executive, 222, Marylebone Road,
London, N.W.1

Advertising B.R. Excursions

October 28

SIR,—Compilers of advertisements appearing in *The Railway Gazette* sometimes show an excellent photograph of the object advertised, and in order presumably to help it to catch the eye of signal engineers, the artist adds drawings intended to represent railway signals. These drawings on occasion have caused some amusement.

My surprise that these curious distortions of a railway signal have repeated themselves for so long a time is accentuated by the picture in your October 17 issue, illustrating a window display designed by the Publicity Officer of the Railway Executive for issue to London area travel agents in connection with excursion advertising. The display consists of a list of cheap trips and that part of it is excellent, but above the placard on which the list is written there appears a drawing representing three signal arms, one of which stands in the "off" position and the other two at "danger." These signal arms and their posts cannot be identified by the casual onlooker as representing the railway signals one is accustomed to see every day on the railways.

What surprises me is that when an artist wishes to draw something, he does not go and look at his object and make a sketch of it on site to avoid perpetuating an absurdity. Alternatively, a word in the ear of a signal engineer would produce a picture identifiable at first glance with the signals the would-be traveller is acquainted with.

As the object of the advertisement is to induce people to travel, I suggest that one signal post standing centrally above the placard and having a "home" and a "distant" arm both in the "off" position is far more inviting than the forbidding look of the artist's effort.

Yours faithfully,

THOMAS E. HAYWOOD,
Managing Director

Thomas Haywood & Sons Limited,
Falcon Works, Coulsdon, Surrey.

November 3

SIR,—In your issue of October 24, you printed a letter from Sir Michael Peto, in which he complained that *British Railways Magazine* lost no chance of praising railway conciliation staff for their wonderful performance of duty, when the public knew that wholesale pilfering and idleness were still only too common. His view was that this was a national consequence of an almost total lack of discipline and punishment.

This statement is so patently exaggerated, and casts such grave reflection on a body of workers who generally pride themselves on their honesty and sense of duty, that I feel an answer should be given.

The former Minister of Transport (Mr. John Scott MacLay) stated in the debate in the House of Commons on November 20, 1951, that he would yield to no one in his belief that railwaymen were as fine a cross-section of British life as any trade, industry or occupation could show. He emphasised that no one deplored the figures more than the great body of railwaymen, and added that there was considerable evidence available that organised gangs operating from outside were responsible for a substantial part of the trouble.

Mr. Geoffrey Wilson, Conservative Member of Parliament, drew from his experience in the legal department of a railway company when he said that these thefts were by

G.W.R. (LONDON) DRAMATIC SOCIETY.—As its first production this season, the Great Western Railway (London) Dramatic Society will present Bernard Shaw's play "Pygmalion" at the Park Theatre, Hanwell, on Wednesday and Thursday next, November 12 and 13; and at the Fortune Theatre, Russell Street, on Saturday, November 15, beginning at 7.15 p.m. This is the first occasion throughout the 30 years of the Society's existence that it has produced a play by Shaw.

THE SCRAP HEAP

Bee Line

Mr. W. F. Green, of the Civil Engineers' Department of the Southern Region, Waterloo, owns a hive of some 60,000 bees on the roof of Waterloo Station.

From their home high above the station the bees have ranged far over London in their search for nectar, and they have done exceptionally well. The engines and smoke do not disturb them. Of all Mr. Green's seventeen hives—the other sixteen are at his home in Chislehurst—this one has done best of all. Half a hundredweight of honey is to be given to the children of the Southern Railway Orphanage at Woking, Surrey, and there is more in the hive.—From "The Evening News."

Railway Accident

When a number of natives, fighting desperately among themselves and oblivious of everything about them, recently surged in front of an oncoming express train and five were killed, a newspaper carried the headline, "Railway Accident." This was going a bit far since it was not a railway accident but something which happened on a railway line to people who had no right to be there. As the term "railway accident" seems to be so casually and lightly used these days, there is reason to be grateful for the forbearance which prevented the recent stabbing to death of a European woman on a railway track from being referred to as a railway accident.—From "South African Railway News."

The Last L. & Y. 2-4-2

In 1911 Mr. George Hughes, Chief Mechanical Engineer of the Lancashire & Yorkshire Railway, built 20 2-4-2 radial tank engines for heavy passenger trains. They resembled the non-superheated 2-4-2 tanks built by his predecessor Aspinall, but had a superheater,

back-to-back valve cylinders, and mechanical lubrication to the cylinders.

Between 1914 and 1925 Hughes rebuilt 44 of the earlier saturated radial tanks with superheaters and piston valve cylinders and in all, making a total of 64 in the class. One of these rebuilt locomotives (No. 50925), the last of the class, is now awaiting scrapping.

Dependable Service



Gummed label issued by the German Federal Railways advertising the reliability of its goods and parcels services

Llanfair for Short

This pleasant little village has groaned long enough under the oppressive weight of the fictitious name Llanfairpwllgwyngyllgogerychwyrndrobwll-llandysiliogogogoch. Its real name is Llanfair Pwll Gwyngyll, and in everyday speech this becomes Llanfair Pwll. Its English equivalent would be "St. Mary's by the White Hazel Pool," and all the additions about hollows, red caves, whirlpools and St. Tysilio's church are imaginary. The bogus

name . . . was invented last century to attract visitors to this part of Anglesey, and has since been perpetuated by the astonished foreigner and the manufacturers of comic postcards. It is rather as if the publicity-mongers had sought to make the lovely Worcestershire village of Broadway an international curiosity by renaming it Broadway-in-the-cotswoldhillsnotsofarfromeveshaminthewesternregionofbritishrailways.—From a letter to "The Spectator."

[The official name of the station on the Chester to Holyhead line is Llanfair, though the full legend is displayed on the platform in the summer months, for the edification, it is understood, of tourists.—Ed., R.G.]

Obstructing an Engine

One of the charges against a man sent for trial at Durham Quarter Sessions on November 3 was that of "obstructing an engine using a railway," and was brought under the Malicious Damage Act of 1861. Caught attempting to steal the signalman's auto-cycle, he had struggled with him in the signal-box at Heighington while the "call attention" bell was ringing for a train from Bishop Auckland.

A New Competitor?

We do not go so far as to suggest that the Corporation of Edinburgh should invest in a fleet of sedan chairs instead of in a fleet of motorbuses. But that is no reason why some far-seeing individual should not put some sedan chairs on the streets. It would add much to the distinction of this fine city if Princes Street at night was atwinkle with the torches of link boys carrying citizens, on business or on pleasure bound.—From "The Scotsman."

Cheap Terminus

A main-line railway terminus for £123,000 seems a bargain, but the G.N.R. shareholders were apparently not of that mind when Kings Cross was opened on October 14, 1852. Their Chairman, however, reassured them: "It is a very cheap station . . . the cheapest building for what it contains in London." Possibly shareholders had been alarmed by visions of Muscovite grandiloquence when the architect, Lewis Cubitt, decided to copy the remarkable roof from the riding school of the Tsar. The first train having "started for York in the presence of a very large number of persons," the latter could turn to the "severely utilitarian" buildings, judging for themselves whether the architect had pleased his uncle, Sir William Cubitt, who had declared that a good station could be built for half the cost of the ornamental archway of Euston. A four-faced clock from the Great Exhibition sounds imposing, though some twentieth-century travellers may refuse to believe that any railway waiting-room was ever "elegantly fitted up and furnished."—From "The Manchester Guardian."



London Midland Region No. 50925, the last remaining Lancashire & Yorkshire 2-4-2 tank locomotive, now withdrawn

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Koedespoort Workshops

The new workshops at Koedespoort, near Pretoria, will have cost about £10,000,000 when completed. So far, more than £3,000,000 has been spent and the production of tools has already started in the machine shop, a building 45 ft. high under a roof of eight acres. Into this building have gone 4,500 tons of steelwork. By 1954, twenty-five acres will be covered with new workshops.

The engine erecting shop, 75 ft. high in parts and covering nine acres, will be ready some time next year. This building alone will use up 6,400 tons of steel. The personnel of the chemical and metallurgical laboratory of the Chief Mechanical Engineer's department have now moved into their new £30,000 laboratory at Koedespoort. The workshops will be able to complete at least 40 heavy engine repairs a month and will also produce spares and stores for other depots.

The extensive workshops area is served by a bitumenised road system. A domestic automatic telephone exchange will connect the shops. All-steel coaches will be built at Koedespoort, the first time this work has been undertaken on a mass-production basis in South Africa.

WESTERN AUSTRALIA

Rolling Stock Livery

The Railways Commission has adopted a standard livery for carriage and brakevan stock of larch green,

with a crest on the side. The crest is symbolic of Western Australia and consists of a black swan painted on a gold shield, with a gold circle surrounding the shield carrying in black lettering the words "Western Australian Government Railways." It is also being affixed to locomotives.

JAPAN

Eightieth Anniversary of Railways

The 80th anniversary of the inauguration of railways in Japan was celebrated on October 14. In the presence of Prince Takamatsu, who represented the Emperor, a ceremony was held in the council chamber of the National Railway Corporation building in Tokyo.

A message of appreciation and encouragement to railway workers was read from the Emperor. Over 5,000 employees were given awards in recognition of meritorious and long service.

CANADA

Pacific Great Eastern Extension Opened

The northern extension of the Pacific Great Eastern Railway from Quesnel to Prince George on the Prince Rupert line of the Canadian National Railways, was opened on November 1. There was an inaugural ceremony at Prince George attended by Mr. W. A. C. Bennett, Premier of British Columbia, and members of the Cabinet. From Mr. Bennett's remarks it has been inferred that a further northern extension of the line into the Peace River country is possible. At the other end of the

line there remains a 40-mile gap between Squamish and Vancouver, which are linked by sea and road services.

An article on the Pacific Great Eastern Railway appeared in the March 24, 1950, issue.

New C.N.R. Freight Stock

The last of some 4,000 new wagons, designed to ease freight handling and capable of carrying greater loads, have been delivered to the Canadian National Railways and are now in service.

UNITED STATES

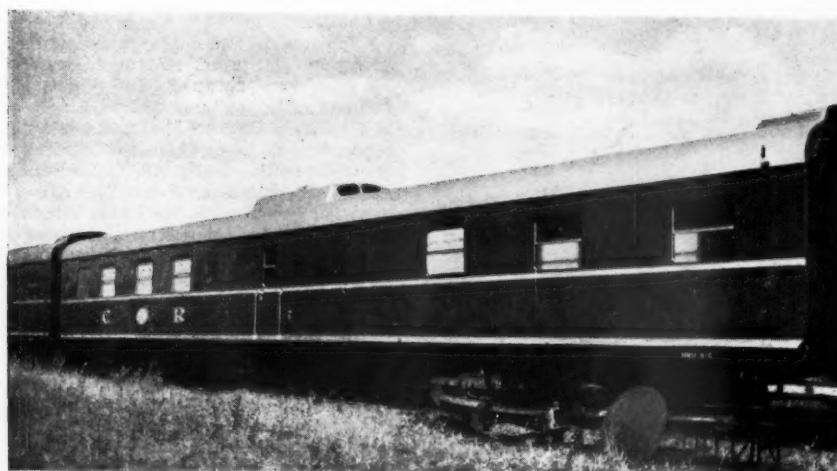
Charge for Checked Baggage

On American passenger services it is the custom to "check" all luggage, except for hand luggage, which passengers are permitted to take with them into the cars in which they travel. They are relieved of the heavier and bulkier articles, and receive in exchange a check. This luggage is loaded into the baggage car on the train, and handed back to the passenger on arriving at his home station (or, in certain cities, at his hotel) on return of the check. On some of the fastest trains only, checked baggage is not accepted, and passengers must travel with hand baggage only. Hitherto this service has been rendered without charge to each ticket-holder, but the major Eastern lines are now charging for each piece of hand luggage and each heavier article.

Western Pacific Tunnel Fire

Many American tunnels are lined with timber rather than masonry or concrete, and from time to time there are

German-Built Stock for Australia



One of two vans built by Niedersächsische Waggonfabrik for the Commonwealth Railways, Australia, showing, on right, guard's compartment arranged for night use. These vehicles are part of an order placed in Germany for eighteen coaches to provide improved services on the Trans-Australian Railway

interruptions of traffic due to tunnel fires. One such fire put the main line of the Western Pacific Railroad out of action for nine days from August 14 to 23. The tunnel, in the Feather River canyon 31 miles east of Oroville, California, was set on fire by a steam derrick which was being used to re-rail eleven bogie wagons that had been derailed.

A wind blowing through the tunnel soon made the fire uncontrollable, and it had to be left until it had burned itself out, destroying five of the wagons also. As soon as the tunnel had cooled sufficiently for men to be able to work in it, 150 men began scaling off loose rock and making a new concrete lining by spraying through hydraulic nozzles. During the nine-day hold-up, Western Pacific passenger and freight trains were diverted.

FRANCE

S.N.C.F. Finances

The Government's estimates for 1953 envisage payments to the S.N.C.F. of approximately fr. 90,000 million made up of an operating deficit guarantee of fr. 30,000 million, and fr. 60,000 million covering compensatory payments to be

made by the State in respect of permanent way renewal and maintenance, the costs of operating level crossings and staff pension obligations (see the August 15 issue). Against this payment, the Government expects to receive from the S.N.C.F. approximately fr. 11,000 million representing 2.5 per cent of its operating receipts; the prospective net payment by the State is about fr. 79,000 million.

Excluding payments by the State to the S.N.C.F. for compensation in respect of compulsorily reduced rates, which are expected to increase from fr. 16,300 million in 1952 to fr. 21,600 million in 1953, the S.N.C.F. debit is likely to decrease from fr. 80,000 million in the current year to fr. 79,000 million in 1953.

Paris Metro Results

During the first six months of the year, some 556,000,000 passengers were carried on the Paris Metro in comparison with 516,000,000 during the corresponding months of 1951. The increase was almost wholly attributable to the considerably higher figures for March this year—97,000,000 against 56,000,000; the low figure in 1951 was caused by the strikes which occurred in mid-March.

Revenue for January-June, 1952, at

fr. 9,580 million shows nearly a 50 per cent increase over the 1951 figure of fr. 6,531 million. The higher fare level operating from August 6, 1951, was the main cause of the increase, although the greater amount of travel in March, 1952, was a contributory factor.

S.N.C.F. Aid to German Railways

After a freight train derailment near Renchen had blocked the main line from Frankfurt to Basle, German Federal Railway officials asked permission of the S.N.C.F. to divert some international trains through Alsace. Permission was at once given and within four hours all difficulties of customs and police formalities were overcome and French locomotives were assigned to haul the foreign trains through French territory.

EASTERN GERMANY

Locomotive Stock

Only 2,900 of the 6,400 locomotives of the East German State Railways are in serviceable condition, according to a report by the management. Of these, 1,173 are stated to be goods and 486 passenger locomotives.

Publications Received

Railways the World Over. By G. Freeman Allen. Hampton Court, Middlesex: Ian Allan Limited, Craven House, 11½ in. x 8½ in. 128 pp. Fully illustrated. Price 12s. 6d.—Much information of a high degree of accuracy on various aspects of railway practice in Britain and overseas is provided in a remarkably small compass. The illustrations are carefully chosen and well reproduced, and there are some clear descriptions of mechanical matters. The book seems to be designed to appeal primarily to the intelligent and better-informed schoolboy or young adult, but even the most experienced railwayman would find it both interesting and informative.

Locomotive and Train Working in the Latter Part of the Nineteenth Century. By E. L. Ahrons. Vol. 3. Reprinted from *The Railway Magazine*. Cambridge: W. Heffer & Sons Ltd. 9 in. x 6 in. 113 pp. + 24 pp. of illustrations. Price 15s.—This is the third volume of the articles by the late E. L. Ahrons, which appeared in *The Railway Magazine* some 30 years ago. It covers the railways of Scotland, and presents a comprehensive picture of their locomotives and train services during a particularly interesting period. Tribute is paid to the meritorious performances achieved with the Anglo-Scottish expresses over severely-graded routes, and the exploits of the Caledonian and North British engines during the race to Aberdeen, in the summer of 1895, are recalled in detail. In the chapters on the railways north of Aberdeen and Perth, a graphic and humorous account is given of the shortcomings of the Great

North of Scotland Railway before the radical improvements in the last two decades of the century, and the difficulties that beset the Highland Railway, with its long stretches of single line and mountainous gradients. The ability to record his accurate observations in a pleasing style, which Ahrons possessed in such full measure, adds a peculiar charm to this account of the railways of Scotland.

Walking Beam Furnaces.—Details of new continuous flow, balanced hearth, walking beam furnaces are given in bulletin V.13 issued by the Incandescent Heat Co. Ltd. The illustrations include various installations both in this country and on the Continent. The furnaces are of varying capacities, and since the beams are refractory covered, are suitable for operating at temperatures up to 1,200° C. A design has been evolved for dealing with laminated springs by which the plates can be loaded on to its hearth without the use of carrier trays. Heated work is discharged piece by piece to a cambering machine, where it is formed and quenched; the plates are then passed through the line for final quenching.

Characteristics of Aluminium.—A series of articles giving the principal characteristics of aluminium is contained in a recent publication, "About Aluminium," issued by the Northern Aluminium Co. Ltd. The subjects include the treatment of pure aluminium and the main alloying elements used to produce wrought or cast aluminium alloys, its tensile properties being given in table form. Other subjects dealt with include annealing, solution, and precipitation treatment to improve

mechanical properties which are illustrated by a series of diagrams. The uses of aluminium in the electrical industry for such equipment as busbars, transmission line cables of heat-treated aluminium alloy, insulated conductors, and so on, are among the other subjects dealt with, together with the resistance to corrosion of aluminium and its alloys.

Fyrite CO₂ Indicator.—Details of an instrument which, it is claimed, provides a simple means for conducting tests for CO₂ in flue gases, is contained in an illustrated leaflet issued by the distributor, the Shandon Scientific Company. The instrument, which is portable, consists of a glass sealed container, in which the gas sample is mixed with an absorbing fluid. Also available are a dial flue gas thermometer having a range of from 200° F. to 1,000° F. with stem lengths up to 24 in. and a draught gauge indicator; the standard range is 0.14 in. up-draught to 0.10 in. down-draught.

Rapier Fork Trucks.—A feature of the latest design of fork trucks manufactured by Ransomes & Rapier Limited, which are described and illustrated in a series of catalogues recently published by the firm, is the provision of a cantilever jib. The lifting capacity of the jib is 5,000 lb. at 7 ft. outreach and 12,000 lb. at 2 ft. outreach; the cantilever jib is easily removed when not required. A further feature is the provision of extension fingers for special loads, shovel equipment for sand, gravel, coke, and so on, with a bucket capacity of 2½ cu. yd., and lifting rams for handling rolling stock tyres, coils, and pipes.

Confines of Braking—2*

Characteristics in service of electro-pneumatic brakes; calculation of brake rigging efficiency

By H. R. Broadbent, B.Eng.

IN the previous part of this article the effect of air pressure rise in the leading car being more rapid than in the following vehicles, was discussed. With an electro-pneumatic brake, although the defect of a difference in time of first moment of rise of air in the brake cylinders is overcome, other troubles arise. The restrictions which can cause varia-

Differences in brake cylinder stroke can also cause considerable variations in rates of rise as is shown in Fig. 8. An odd feature arises in this case, particularly where brake blocks are set below the horizontal centre line of the wheel and the ratio of loaded weight/tare is high. If all slack adjusters on a train are set to give the same cylinder stroke with

the relative positions of the brake blocks on the wheels.

A further difference in brake cylinder pressure, from the maximum consistent with the adhesion, occurs with retarder control. The point in the cycle of braking where, it is judged, the limit of adhesion would be reached by the braking force becomes the point at which air

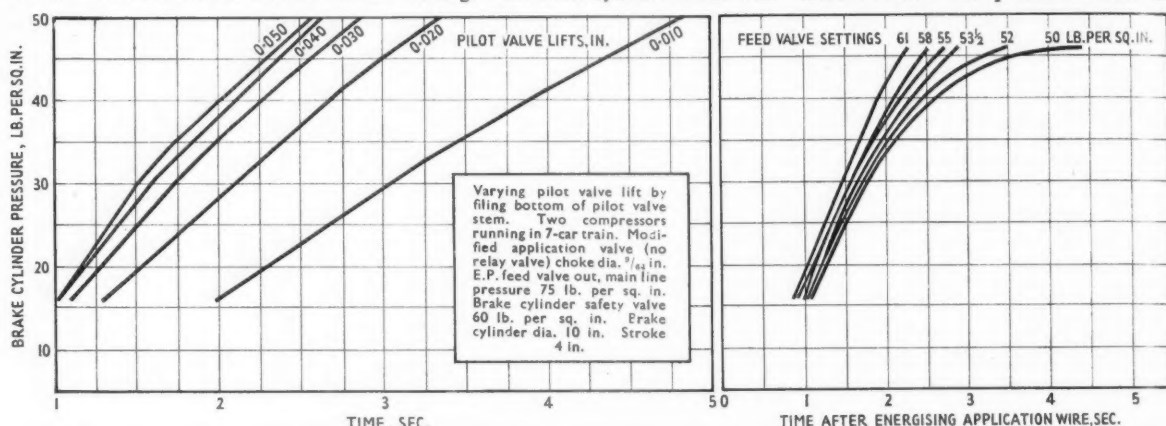


Fig. 6 (left)—Rise of brake cylinder air pressure, full E.P. application by D.B.V., with varying lifts of application valve pilot valve; and Fig. 7 (right)—rise of air pressure in 10-in. trailer car brake cylinder with various feed valve settings

tions in rate of feed through triple valves appear with an E.P. brake in other places; in, for instance, the variation in lift of an application valve. Fig. 6 shows such a variation, and a limit must be placed on this lift in manufacture and maintenance if it is not to be trouble-

a train empty, it is possible that, after a train has been in service and the slack adjuster has been working with the brake block in a lower position, due to passenger loading, the strokes will be reduced when the cars are once more empty of passengers. In a particular case where all

must be vented from the brake cylinder. Due to the inertia of the air and controlling apparatus, the pressure in the brake cylinder is brought too far below the maximum, particularly in an emergency stop, and, with recovery, a succession of peaks and troughs occurs with an aver-

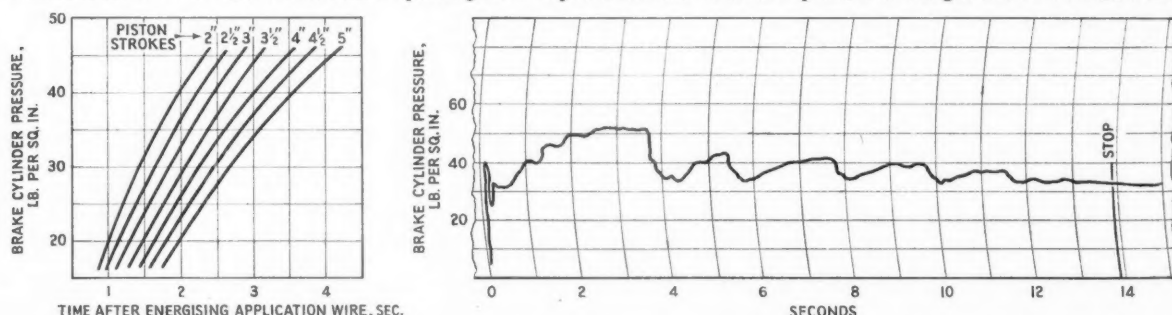


Fig. 8 (left)—Rise of air pressure in 10-in. trailer car brake cylinder with various piston strokes; and Fig. 9 (right)—retarder control of emergency brake stop from 41 m.p.h., leading car of empty 7-car 1938 tube stock train, non-metallic inserts, blowdown safety valve 31 lb. per sq. in., wheels and rails sprayed with water

some. Even so, the variation from the average reduces the possibility of maximum braking.

If E.P. feed valves are used, a variation in setting can also produce variations in the rate of rise of brake cylinder air as can be seen in Fig. 7.

cylinder strokes on a seven-car train were set accurately to 4 in. in the depot, on return from passenger service it was found that they had altered to 3 3/4 in., 3 1/2 in., 3 1/4 in., 3 3/8 in., 3 in., 3 1/8 in., and 3 7/8 in.

The differences in the effect of running in service were due to differences in the ratios of loaded weight/tare and

age which produces a braking rate lower than would be possible if the value could be held exactly on the limit of adhesion. Fig. 9 shows a record of an emergency stop where the brake cylinder air has been controlled by a retarder, blow-down valve, and additional relay vent valve. It is possible that this form of control by relay valve is too crude and that the

* Part 1 of this article appeared in our issue of October 31

average may be brought closer to the maximum.

The considerations above emphasise the importance of air pressure measurement and the necessity of using an accurate master gauge for the setting of all devices rather than trusting to a local car gauge which is only an indicator.

Dynamic Braking Apparatus

The various types of dynamic braking—regenerative, resistance, and eddy current—must all be scaled down by the degree to which the average is below the maximum. Variations in characteristic between machine and machine are appreciable, and resistors and other receivers of energy vary also within accepted manufacturing tolerances.

Brake Rigging Efficiency

The term brake rigging efficiency is used to describe the ratio between the force on the brake block and the appropriate proportion of force of the brake cylinder piston multiplied by the leverage between piston and block. In designing leverages, cylinder sizes, and air pressures with pneumatic brake gear, it has been the practice in the past, where cast-iron brake blocks are used, to calculate the percentage braking on motored axles at 85 per cent tare and free axles at 80 per cent tare. The figures obtained by this method were the values which would appear as denominators in the brake rigging efficiency ratio. The numerator varies with the type and layout of rigging. The efficiency may be as low as

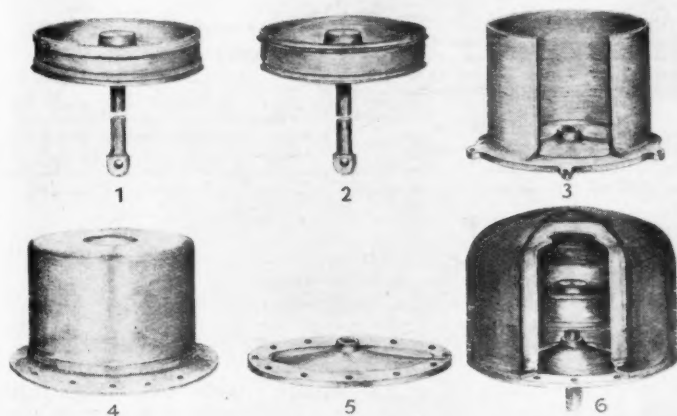
66 per cent on an individual block on a car with a single brake cylinder, or as high as 95 per cent with individual brake cylinders for each block. These are values obtained on a stationary train with artificially vibrated rigging in the case of the car with single brake cylinder. There is scope for research in investigating the actual efficiency when the brake is doing work.

It will be appreciated that, if one axle has an average block rigging efficiency appreciably different from another, there is danger of pick-up on the more efficient axle, and allowance must be made therefore for the difference in the design of leverage or, with individual brake cylinder, in cylinder size and/or leverage.

(To be continued)

British Railways New Vacuum Brake Cylinder

Pressings of aluminium are expected to reduce labour and maintenance costs



Types of vacuum brake cylinders and sealing methods in use and under development on British Railways

BRITISH RAILWAYS are experimenting with vacuum brake cylinders of a new design and material, which it is expected will result in a substantial saving in both manufacturing and maintenance costs. Two types of cylinders are in use on British Railways. Both are similar in construction, but use different methods of obtaining a seal between the piston and cylinder, as shown in the accompanying illustration, namely a sliding band (1) and roller ring (2).

Design Features

The normal and accepted design of vacuum brake cylinders for both carriage and wagon stock on British Railways incorporates the use of a cast-iron cylinder (3), and experiments are being carried out using a pressing of 14 gauge aluminium sheet (4). Three cylinders were made in the initial development, and to avoid the cost of expensive tool-

ing, were produced by the spinning method.

The closing disc (5) was produced from a casting to avoid the making of press tools, and the two units are assembled in a standard drum, the flanges having annular rubber gaskets placed between the mating faces to ensure a hermetical seal, the whole assembly (6) being bolted together.

A complete assembly has been subjected on the test bench to some 100,000 complete cycles, during which no defects occurred. On the completion of the tests a small amount of detritus was observed in the cylinder consisting of powdered rubber with a small percentage of aluminium particles due to the removal of high spots in the cylinder wall left from the spinning operation.

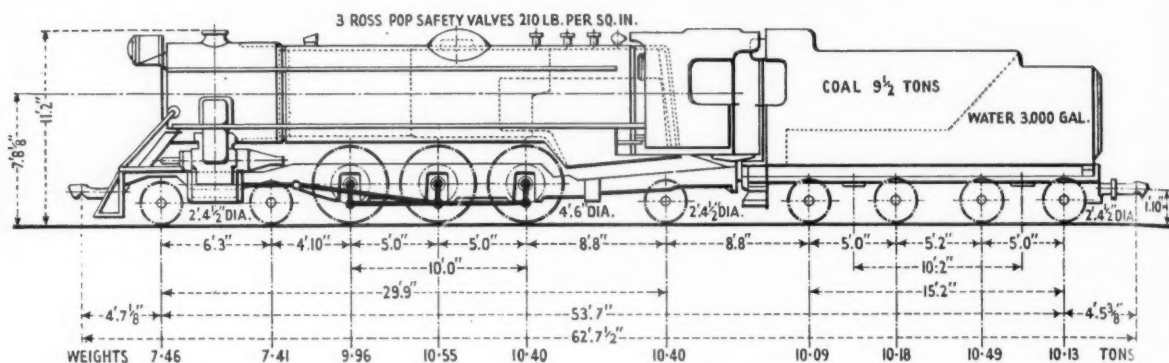
Practical tests are being carried out; two cylinders are fitted to covered goods vans to observe results under actual

working conditions. The cylinder has been designed by Mr. E. Pugson, Chief Officer, Carriage & Wagon Construction & Maintenance, Railway Executive, and experiments were carried out in collaboration with Wilkins & Mitchell Limited.

STANDARDISATION OF HACKSAW BLADES.—On January 1, 1953, an agreement will come into operation between the British Hacksaw Makers' Association, on behalf of the British hacksaw industry, and the Hacksaw Manufacturers' Association of America Incorporated, on behalf of the American and Canadian hacksaw industries, covering the standardisation of hacksaw blades, and providing in particular that the American, British, and Canadian hacksaw industries will have a common list of blade sizes. This new list of sizes has been drawn up in the light of joint experience of the two associations over a great many years and is intended to be simpler, and yet more comprehensive and effective, than either the previous American list or the previous British list. A comprehensive research programme has been carried out jointly since 1949 in order to ensure that the combinations of length, width, thickness and tooth numbers included will meet all normal sawing requirements.

PASSENGER-OPERATED DOORS FOR HAMMERSMITH & CITY LINE TRAINS.—Passenger-operated door control was introduced on the Hammersmith & City Line, London Transport, on November 3. At stations on the open section of the line between Royal Oak and Goldhawk Road (inclusive), but not at Hammersmith and Paddington, or at stations in tunnel, passengers open the doors by pressing rubber buttons inside or outside the cars. The push-buttons can only be operated when trains are stopped at a station, and then not until the guard has operated a master switch. Closing is by the guard as hitherto. By obviating the opening of all doors at open stations trains are kept warmer and drier in inclement weather. A similar system was already in operation on open sections of the Northern, Central and Bakerloo Lines.

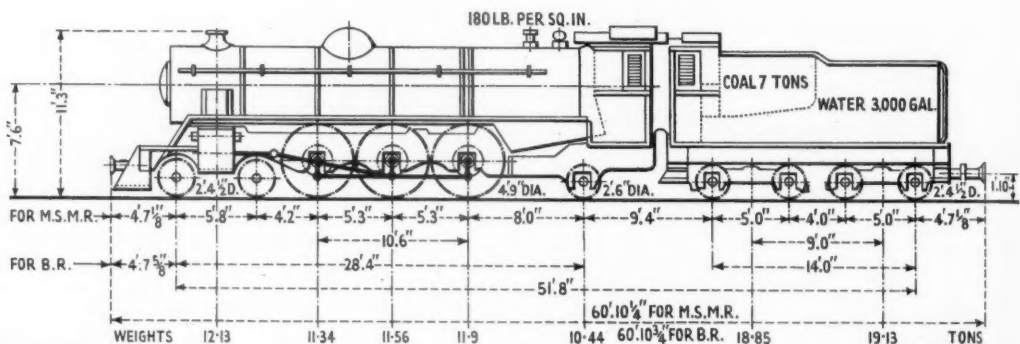
Metre-Gauge Locomotives for India



CYLINDERS, TWO 15½" DIA. x 24" STROKE
 LENGTH BETWEEN TUBEPLATES 12'10¾"
 GRATE AREA 28 SQ. FT.
 TRACTIVE EFFORT AT 85% B.P. 18,400 LB.

	WEIGHTS, TONS		
	ENGINE	TENDER	TOTAL
LIGHT	50-45	17-68	68-13
LOADED	56-18	40-89	97-07

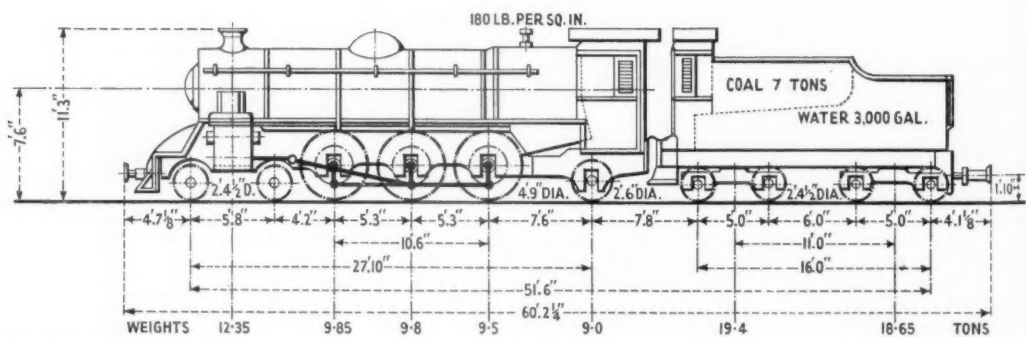
"YP" CLASS



CYLINDERS, TWO 17½" DIA. x 24" STROKE
 LENGTH BETWEEN TUBEPLATES 15'6"
 GRATE AREA 31 SQ. FT.
 TRACTIVE EFFORT AT 85% B.P. 19,729 LB.

	WEIGHTS, TONS		
	ENGINE	TENDER	TOTAL
LIGHT	51-06	17-63	68-69
LOADED	57-37	37-98	95-35

"YC" CLASS



CYLINDERS, TWO 16" DIA. x 24" STROKE
 LENGTH BETWEEN TUBEPLATES 15'0"
 GRATE AREA 23-1 SQ. FT.
 TRACTIVE EFFORT AT 85% B.P. 16,492 LB.

	WEIGHTS, TONS		
	ENGINE	TENDER	TOTAL
LIGHT	45-6	17-6	63-2
LOADED	50-5	38-05	88-55

"YB" CLASS

Diagrams showing principal weights and dimensions of three metre-gauge Indian Government Railways locomotives for passenger and goods main line services

Metre-Gauge Locomotives for India

"YP" class standard engines, designed for passenger traffic, have many parts interchangeable with the corresponding goods class

By R. G. Da'Costa,

Deputy Chief Controller of Standardisation (Designs), Railway Board

THE policy of standardisation of locomotives on the Indian Government Railways has made considerable strides since its inception some 25 years ago, and locomotives designed for manufacture in India, and proportioned for economical operation with Indian non-coking coals, are rapidly replacing the older classes.

From August, 1947, four new classes of locomotives have been put into service. These are the "WP" class standard passenger and "WG" class standard goods locomotives, for the 5 ft. 6 in. gauge, and the "YP" class standard passenger and "YG" class standard goods locomotives for the metre-gauge. It is planned that these four classes of locomotives should handle eventually about three-fourths of all Indian main-line traffic.

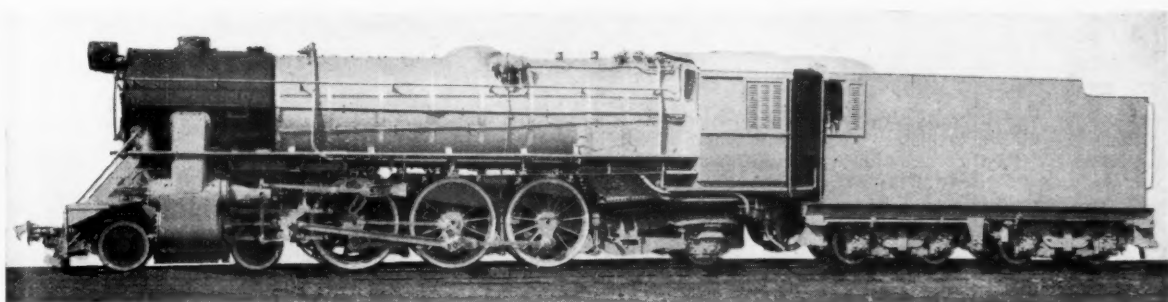
Apart from the economy in classes,

put into service in February, 1950. These engines were subjected to oscillograph trials to analyse their riding characteristics and the lateral forces exerted on different track. The optimum lateral controls for the bogie and hind truck were determined during these practical trials and specifications for the bulk purchase of this class, incorporating modifications found desirable from experience with them over the last 18 months, have been finalised.

The original "YP" class locomotives were built by the Baldwin Locomotive Works to the specification of the Indian Government Railways and their Consulting Engineers, Messrs. Rendel, Palmer & Tritton. These new engines will be the standard passenger unit for the Indian metre-gauge lines, and an order for 200 has been shared by the North British

sq. in., the boiler barrel consists of two courses, each $\frac{5}{8}$ in. thick, the first course being coned. The barrel diameter at the firebox end is 5 ft. 2 in., and 4 ft. 9 in. at the smokebox end. The firebox is of the round-top type, the inner firebox being of steel and of all-welded construction; a Nicholson thermic syphon and two arch tubes are fitted. The firebox includes a combustion chamber 2 ft. 10 in. long.

The grate area is 28 sq. ft. and the boiler is fitted with 26 flue tubes $5\frac{1}{4}$ in. diameter, and 67 tubes 2 in. diameter. Melesco A type elements $1\frac{1}{2}$ in. diameter are accommodated in the flues to give a superheat temperature of 720° F. when burning coal of 12,000 B.T.U.s. per lb. at 135 lb. per sq. ft. of grate per hr. The boiler is supported at the front end on a saddle integral with the cylinders, and



Indian Government Railways "YP" class standard engine for metre-gauge main-line passenger services

this group of four locomotives is interesting from a standardisation point of view since a high degree of interchangeability of both major and minor components between the passenger and goods units has been achieved. The boilers with all their mountings, tenders, valve gear, axleboxes, springs, frame steel castings, and cabs are interchangeable between the passenger and goods units. Further, the mechanical features of the "WP" and "WG" class broad-gauge locomotives have been reproduced with appropriate scale reductions in the corresponding metre-gauge engines, so that maintenance technique will be common to all four classes.

The Indian Government Railways have now acquired 316 "WP" class locomotives (including prototypes) and have put 100 "WG" class locomotives into service. A further 150 "WG" class locomotives are under construction, some of which are being built in the Chittaranjan locomotive works. Also, 150 "YG" class engines have been put into service, while 50 more are on order. In addition 20 prototype "YP" class engines were

Locomotive Co. Ltd., Krauss-Maffei, A.B., and the Tata Locomotive & Engineering Co. Ltd. Principal dimensions of the locomotive are as follow:—

Weight of engine in working order	56.18 tons
" " tender	40.89 "
Maximum axle load	10.5 "
Wheel arrangement	4-6-2 plus bogie tender
Maximum rigid wheel base	10 ft.
Engine wheel base	29 ft. 9 in.
Engine and tender wheel base	53 ft. 7 in.
Overall length over A.B.C. couplers	62 ft. 7½ in.
Weight of coupled wheels	30.9 tons
Cylinders (2)	15½ in. dia. x 24 in stroke
Heating surface:	
Flues	459 sq. ft.
Tubes	456 "
Syphon	22 "
Arch tubes	11 "
Firebox	121 "
Combustion chamber	42 "
Total evaporative	1,111 "
Superheater	331 "
Total	1,442 "
Grate area	28 "
Nominal tractive effort at 85 per cent. boiler pressure	18,400 lb.
Factor of adhesion	3.76

Design Features

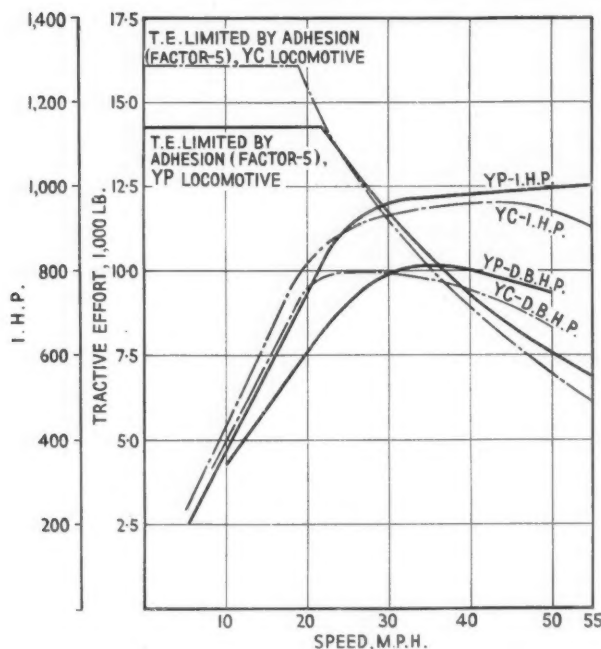
The locomotives have a maximum axleload of 10½ tons and are designed to negotiate 16 deg. curves. Built for a boiler working pressure of 210 lb. per

at the back, the leading end of the foundation ring rests on oil-lubricated expansion shoes on the frame cross stretcher. At the back end of the foundation ring, the boiler is attached to the main frame by a breather plate. Breather plates attaching the boiler belly to the main frame are also located over each pintle support so as to minimise the effect of bending stresses in the main frame.

A Joco regulator in the dome is operated by a ramshorn type handle similar to that adopted on earlier I.R.S. locomotives. The firebox is fitted with a rocking grate of I.R.S. type; finger rocking bars are arranged in two sections for rocking manually. A single hopper ashpan of all-welded construction is supported from the frame, and allows adequate air-openings below the boiler. The smokebox is of the extended type and accommodates a self-cleaning front end proportioned according to the recommendations of the American Master Mechanics; spark screens are also incorporated.

The boiler is clothed with steel sheet

COMPARATIVE LOCOMOTIVE PERFORMANCE



COMPARATIVE BOILER PERFORMANCE ON THE BASIS OF COAL OF CAL. VALUE = 125,000 B.T.H.U./LB

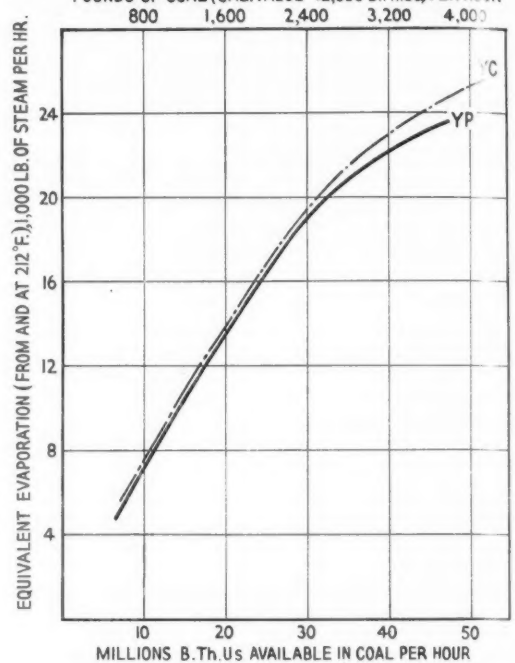


Diagram of comparative locomotive and boiler performances of the "YP" class and "YC" class standard engines

ing leaving an air gap between the clothing and the boiler plates; asbestos mattresses are fitted to the boiler back-plate and those portions of the wrapper inside the cab, and extend 1 ft. beyond the cab front plate. The boiler mountings have been selected from standards used on the Indian railways for over 20 years. The injectors are the I.R.S. pattern—9 mm. on the left-hand side and 10 mm. on the right-hand side. Three 2½ in. dia. Ross pop safety valves are fitted. Lubrication of the cylinders is

by Wakefield AC hydrostatic lubricator. Standard Dewrance water gauges and Everlasting type blow-off cocks have been fitted as standard equipment.

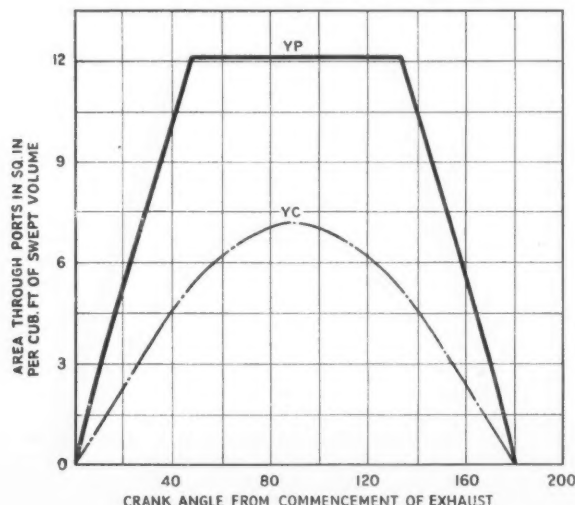
Frame Design

The engine main frames are of the bar type, cut from rolled-steel slabs machined to 3½ in. thick. The rear part of the frame below the fire grate and cab platform consists of a one-piece cast-steel cradle as on the prototype locomotives. On part of the loco-

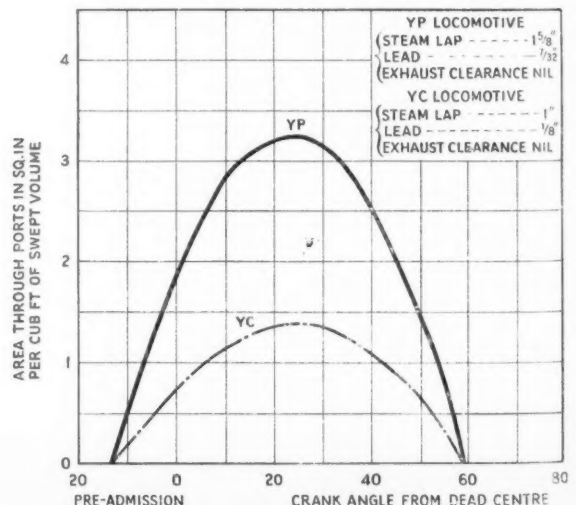
tives on order, an alternative design of fabricated cradle, more suitable for manufacture in India, has been provided.

The cylinders are of cast steel and fitted with cast-iron barrel liners. On one group of locomotives, cast-iron cylinders have been accepted as an alternative. The cylinders are 15¼ in. dia. by 24 in. stroke. The hind cylinder, and also the steamchest covers are steel castings, while the front covers are of cast iron with breaking grooves.

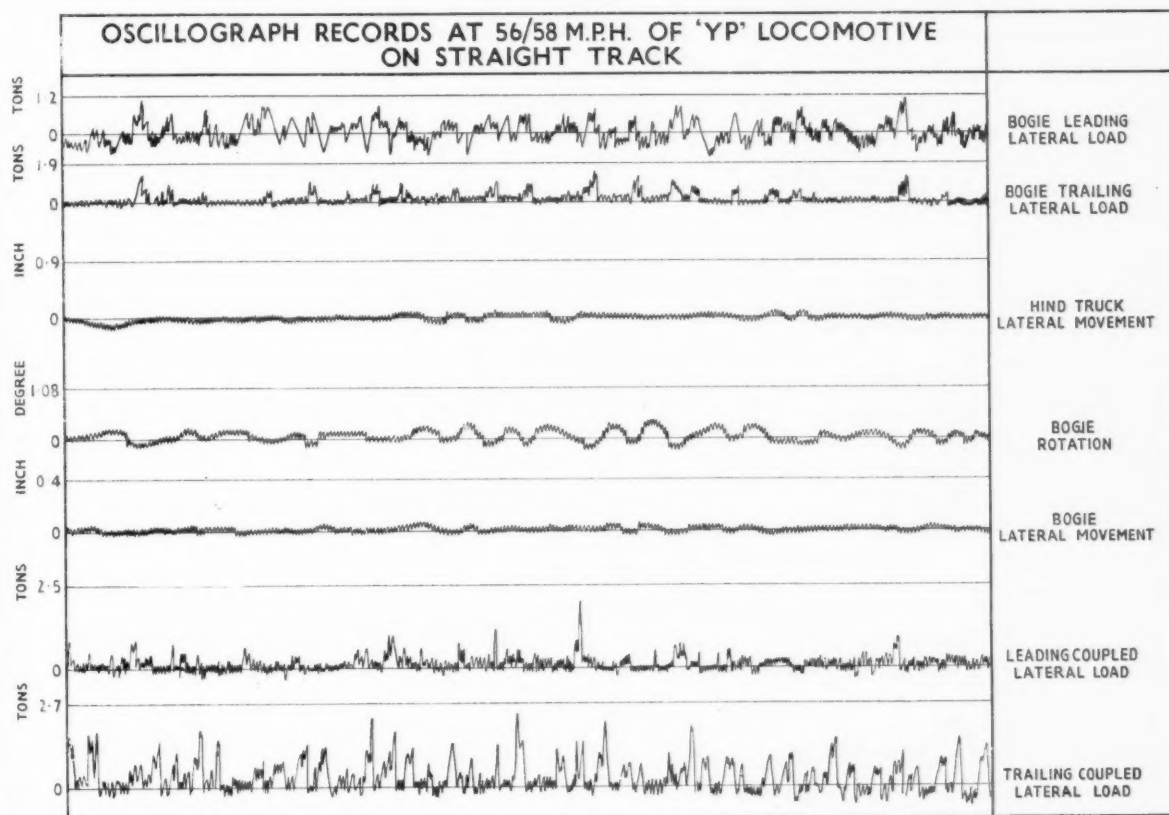
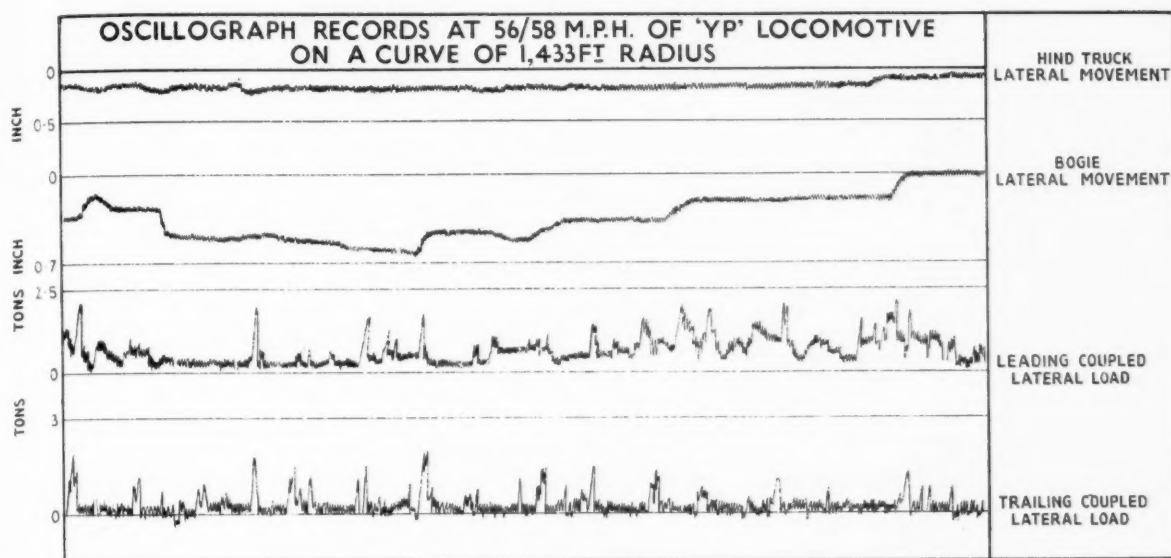
EXHAUST CURVES FOR 25% CUT OFF



ADMISSION CURVES FOR 25% CUT OFF



Exhaust and admission curves of the "YP" class and "YC" class locomotives



Oscillograph records of the "YP" class locomotive on curved and straight track

The slidebars are 5.22 in. wide and the crossheads are of the cast-steel, integral Alligator type, with white-metalled wearing faces. The crosshead and piston rod are secured by a double taper, adopted as standard on Indian Railways. The gudgeon pin is lubricated by soft grease. Walschaerts valve motion, designed for a $\frac{3}{32}$ in. lead, $1\frac{1}{8}$ in. lap, and exhaust line on line, has been

adopted. Piston valves of 9 in. dia., of the plug type with four rings on each head, have been used. On the valve motion, roller bearings are adopted only in the eccentric rod eyes on the return cranks.

The coupled wheels are of the spoked type and have hub liners of 11 to 14 per cent manganese steel, secured by countersunk screws. The liners are

lubricated by grease through the hub. The tyres are shrunk on to the steel centres and secured by side rivets through the rim.

These locomotives, like others of the series of new engines, have been balanced according to the rules recommended by the A.A.R. For the "YP" locomotive, all the rotating parts and 5 per cent of the reciprocating parts

have been balanced and the driving axle has been cross-balanced. In order to secure uniform stressing of rails, the distribution of reciprocating balance between the coupled wheels is: loading 20 per cent., driving 14 per cent., and trailing 18 per cent.

The coupled axleboxes are of solid lead bronze with hard grease lubrication provided by Ajax keeps. The horn faces of the axleboxes are lubricated by oil fed from gravity feed oil boxes located on the main frame. All the carrying axles have been provided with wearing surfaces of 11 to 14 per cent manganese steel and the side liners of the roller-bearing boxes are of a similar material; the contact faces are lubricated by oil.

The spring system of the locomotives is fully equalised to give 3-point suspension. Spring hangers are of the double-sword type held together by jib cotters above the spring and below the compensating levers. Auxiliary springs designed from Belleville washers, so as to absorb vibrations with frequencies between three and 12 per second, have been included in the spring system.

The cab is constructed of aluminium alloy, to save weight at the trailing end of the locomotive. The cab is roomy and well-ventilated to suit Indian conditions and follows the main features adopted for Indian Standard locomotives over 20 years ago, except that the deck plate is of the extended type. The intermediate draw gear is of a spring-loaded type covered by an Indian patent. The initial spring load is 13,500 lb. and is applied at the back of a self-aligning block faced with 11 to 14 per cent. manganese steel, and bearing against a flat bearing block on the engine dragbox, also lined with a similar material. In order to reduce the

influence of lateral forces due to friction between the bearing blocks, provision has been made for the lubrication of the bearing faces by soft grease.

Bogie Construction

Both engine and tender have been fitted with the automatic vacuum brake, the vacuum being created and maintained by SJ(P) class ejectors. Though the prototype locomotives had bogie frames made of single steel castings designed by General Steel Castings, the new units have fabricated bogie frames. The latter design is preferred for manufacture in India. The bogies take the engine load on a central pivot-table lined with a fabric liner giving a coefficient of friction not exceeding .16 in the dry and unlubricated condition.

The pivot table is part of a bolster moving against horizontal and vertical slides also of the same fabric material. In order to negotiate the maximum curves, the bogie has been provided with a side movement each way of 2.75 in. This movement is controlled by helical springs, located fore and aft the pivot, and arranged to give a "crack-off" load together of 2.80 tons and a maximum load at the extreme side movement of 4.34 tons.

The hind truck is of the Cole type, permitting movement each way of 2½ in. The movement is controlled by helical springs arranged for a "crack-off" of 1.28 tons and a maximum spring load of 2.55 tons at extreme lateral movement. The lateral movement is also damped by friction liners arranged below the springs, the coefficient of friction of liners (dry and unlubricated) being .16. For dealing with higher frequency vibrations caused by slight pitching of the locomotive when operating at speeds exceeding

three revolutions per second, high-frequency auxiliary springs composed of Belleville washers have been inserted below the spring buckle and between the high truck yoke and axleboxes.

The tender is of riveted construction and has been designed for a coal capacity of 9½ tons and water capacity of 3,000 gals. The tender bogies are fabricated from flanged plates, and the tender boxes are of the roller bearing type. The flanges of the tyres of all carrying wheels have been thickened up on the gauge face by ⅞ in. to reduce the lateral play in the track gauge. The leading and trailing coupled axles have standard flanges and tyre profiles but the driving flange has been removed.

The locomotives will burn Indian non-coking coal of calorific value from 11,500 to 12,500 B.T.U.s per lb. and are expected to develop an indicated horsepower of 1,000 when fed with coal at 135 lb. per sq. ft. of grate per hour (or 3,780 lb. per hour). The normal maximum speed on metre-gauge tracks in India is 45 m.p.h., but the "YP" locomotive has been tested up to speeds of 60 m.p.h. and found to have very satisfactory riding characteristics.

This class will supersede the "YB" and "YC" locomotives of the earlier standardisation. The "YC," with its 12-ton axleload, cannot be admitted on 50-lb. rails, and the "YB," with a grate area of only 23.6 sq. ft. gives a relatively lower boiler efficiency with the quality of coal now issued for these services. The higher temperatures of superheated steam and the improved valve gear of the "YP" locomotives will permit them to develop 20 per cent. more power than the "YB" and approximately 10 per cent. more power than the "YC" locomotives.

MOTORCYCLES FOR SCOTTISH REGION STATIONMASTERS.—Twenty motorcycles have been purchased recently for use by stationmasters in remote districts of the Scottish Region who are responsible for more than one station. These 250 cc. B.S.A. machines are for personal transport to enable the stationmasters concerned to get quickly from one point to another in scattered areas. They are being supplied for use at Airth, Ballindalloch, Broxburn, Caldercruix, Crail, Crook of Devon, Dunfermline Upper, Gourdon, Greenloaning, Inverkeilor, Inverurie, Jamestown, Largo, Loanhead, Longtown, Ormiston, Riddings Junction, and Udry. The transaction is one of the many varied day-to-day purchases made by British Railways, whose expenditure each year on stores and materials (excluding coal) for use in Scotland amounts to approximately £7½ million.

ELECTRICITY TO AID PRODUCTION.—Mr. A. R. W. Low, Parliamentary Secretary, Ministry of Supply, on October 29 addressed the opening meeting of the Industrial Productivity Conference organised by the British Electrical Development Association and held in London at the Institution of Electrical Engineers. Britain, he said, had one productivity problem not shared to the same extent by any other

country. The average age of its population was increasing year by year, so that those who were actively at work would have to produce more if they and the older members of their families were to enjoy the standards of living in which they had grown up, and still more if better standards of living were to be attained. Sir Norman Kipping, Director-General of the Federation of British Industries, said at the same meeting that he wanted to see the operative not only with more power to his elbow, but with power pouring out of his very fingertips into power-driven hand tools.

MERGER OF FRANCO-SPANISH FRONTIER STATIONS.—It is reported that from May 17 next year the French and Spanish frontier stations at Hendaye and Irun, and at Port Bou and Cerbere, on the Madrid and Barcelona lines respectively, will be amalgamated. Frontier formalities will thus be reduced to one hour, saving nearly four hours on the Madrid-Paris journey.

BRIDGE REPLACEMENT IN SCOTTISH REGION.—The bridge carrying the Glasgow-Stranraer line of the Scottish Region over the Cross Water of Luce, some three miles from Glenwhilly, was opened in 1877 as a structure of three spans of approximately 30 ft. each, supported by cast

iron intermediate piers. It has now been replaced by a single span girder bridge of 65 ft. span. Engineers took possession of the line on October 25 after the passing of the last train; the present structure was taken away, the new bridge placed in position on new concrete abutments, and the track replaced in time to permit the passage of the Glasgow-Stranraer Irish boat train on Sunday evening, October 26.

CLEANING GLASGOW CENTRAL STATION ROOF.—Work has begun on cleaning the covered area of Glasgow Central Station, involving the scraping and washing of many thousands of panes of glass. The total surface area of glass amounts to 42,000 sq. yd., or approximately 8 acres. The work will take about six weeks.

LIVERPOOL OVERHEAD TRAFFICS.—There was an improvement in traffics of the Liverpool Overhead Railway during the second two weeks of September, which more than offset the decreases of the first fortnight. The greatest advance was for the week ended September 28, when receipts at £2,762 were £221 higher than for the equivalent week of 1951. Aggregate receipts at September 28 were up by £6,639 at £112,218.

Plano-Miller for Bogie Frames

Four-headed machine designed for gang-milling cast-steel diesel-electric locomotive bogie frames

THE Canadian Car & Foundry Co. Ltd. is in the process of re-organisation for a considerable increase in output. In implementing this scheme, the firm has recently taken delivery of two plano-milling machines designed by Kendall & Gent Limited, for gang milling diesel-electric locomotive bogie frames. Each machine is equipped with four milling heads, two on the cross-slide, and one on each upright. The heads are operated by separate motors and design of the machine is such as to ensure that axle-box horns and other machined faces, locating pads and so on, are in correct alignment.

The bed is a two-piece casting, of 31 ft. and 9 ft. respectively. The machine table is 29 ft. long by 7 ft. 9 in. wide, and 8 ft. 6 in. from the cross-slide to the table. All bearing surfaces are chilled, and the table is machined to a tolerance of .001 in. in 6 ft. Spiral oil grooves are provided. The slideways of the bed and table are lubricated by means of a motor-driven oil pump delivering 60 gal. per hr. This source also lubricates the worm and rack driving mechanism of the table.

Motor Drives

Feeds to the table are obtained from a two-speed 20/20-h.p. motor mounted at the side of the bed. Sixteen feeds are available irrespective of spindle speeds, in a range of $\frac{1}{2}$ in. to 12 in. a minute. Micrometer hand motion and rapid power traverse are also incorporated. The milling heads on the cross-slide are of Kendall & Gent standard design having a $4\frac{1}{2}$ in. dia. spindle.

An eight-speed gear box is fitted which, together with the two-speed motor, gives 16 speeds in the range of six to 120 r.p.m. The driving motor develops 30 h.p. at both speeds and is direct-coupled to the gearing to ensure a rigid transmission. All gears are hardened and ground; the heads are equipped with ball or roller bearings.

Each vertical milling head is equipped with a separately driven boring mechanism to the spindle. Power is obtained from a 2-h.p. motor. Six changes of feed are provided from $\frac{1}{2}$ in. to 2 in. a minute. Micrometer hand adjustment is used for setting the depth of cut when plano-milling. The ends of the sleeves carrying the vertical spindle are flanged for carrying attachments for machining the ends of work, by cross-feeding the milling head while the table is stationary. A further attachment consists of an extension snout for milling inside faces of castings of box section construction.

The horizontal milling heads in general follow the same design as the vertical heads except that they have been adapted by the fitting of overarm-carrying mandrel stays. The stays can be removed and the overarms re-

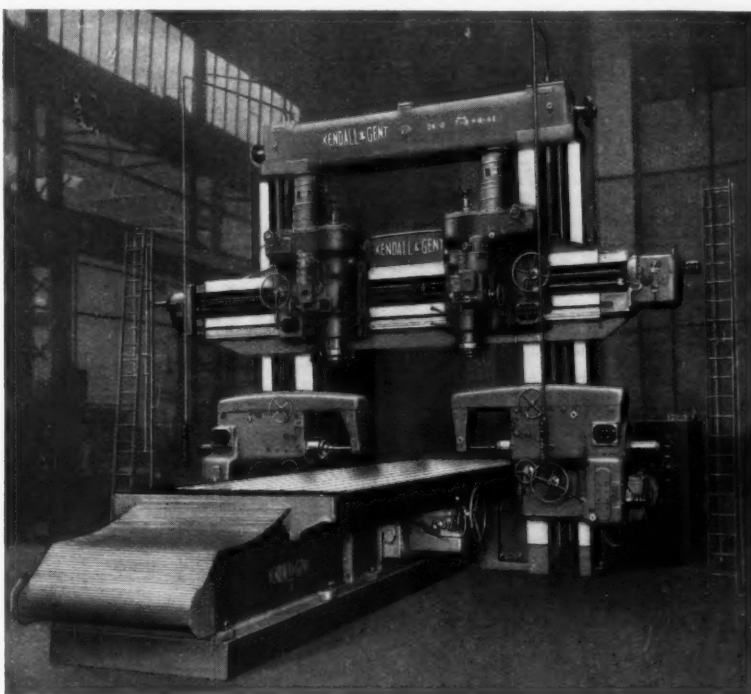
tracted by hand motion, and the heads used for general plano-milling. The vertical and horizontal milling heads can be actuated over their respective slides at feed rates, or by rapid-power traverse. Feeds range from $\frac{1}{2}$ in. to 9 in. a minute in eight changes, driven by separate motor and gearbox.

Control Apparatus and Interlocks

Control of the machine is entirely by push-buttons. Two pendants are fitted,

including the oil and coolant pumps, is housed in a separate totally enclosed cubicle 15 ft. 5 in. \times 6 ft. 6 in. \times 2 ft. 6 in. deep; this equipment was supplied by Allen West & Co. Ltd. There are twelve motors controlled by push-buttons. Those for the main drives are conveniently located on the machine and those for the pumps fitted in the contactor cubicle.

The four 30-h.p. milling head motors are arranged for auto-transformer start-



Kendall & Gent plano-miller for gang-milling bogie frames

having duplicated push-buttons which control moving parts only; feed and rapid power traverse of milling heads and table; and raising and lowering of the cross-slide. Push-buttons for stopping and starting the spindles are built into the milling heads, and duplicated for convenience where necessary. Emergency stops are fixed to the pendants.

Interlocking is provided as a safety measure during operation. The table motor cannot be started if the oil feed to the slideways is not functioning; if the oil pump stops, the table motor stops simultaneously. Safety appliances are also provided to prevent overloading of the milling heads. The boring feed motors on the vertical milling heads cannot start unless the respective main drive motor is working; should the latter motor stop, the boring feed also stops.

Electrical control gear for all drives,

ing and are, in addition, dual-speed. Either speed can be selected by push-buttons and reversing is effected by operating snap switches in the cubicle. The 20-h.p. table motor is dual-speed and arranged for auto-transformer starting. Forward and reverse can be obtained by push-button and either speed can be selected by a hand-operated switch located in the cubicle. The 20 h.p. elevator motor is also auto-transformer started; other motors are direct starting.

Layout of Electrical Equipment

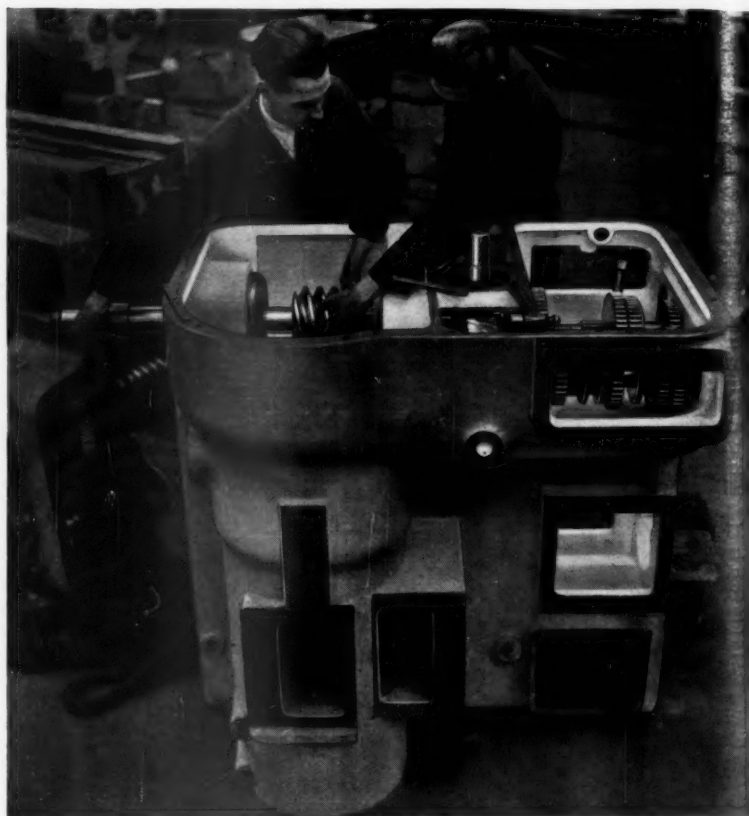
The cubicle, of $\frac{1}{2}$ in. mild-steel plate, comprises six separate compartments with doors having separate top and bottom sections. The centre cross-bar is used for mounting snap switches, push-buttons, and so on. Incoming electrical supply is brought to a main isolating switch, electrically interlocked

with the control circuit and also locked mechanically with all doors. Connected to the "dead" side of the isolating switch are three busbars running the length of the cubicle and carrying the connections to the various starters.

A feature of the layout is that equipment for the four main milling heads is contained in a separate section of the cubicle; the layout of each section is identical. All contactors, also, are similarly arranged on the panel and the auto-transformers are located behind the panels in the casing. The wiring diagram is similar for each head, which simplifies maintenance. The control gear for the auxiliaries is mounted in the left-hand casing. Hand resetting levers are arranged in line and designation labels are attached to each. Over-current relays have a black and white label indicating motion and h.p. of the motor concerned.

The smaller contactors for auxiliary motion are protected by main current fuses. Ammeters are calibrated in amperes and horsepower, a red line indicating full-load current. Where used for two-speed motors, they have three scales, applying to two-pole connection, four-pole connection, and horsepower. A special pointer is fitted. All clearances and creepage distances are to Canadian requirements. In addition a step-down transformer brings the control circuit voltage down to 110.

The height admitted under the vertical milling heads is 8 ft. 6 in.; the width plano-milled with side heads is 9 ft., and the width between the uprights is 10 ft. 6 in.



Assembling of one of the gearboxes of the plano-milling machine for gang-milling bogie frames

French Railways Rectifier Locomotive

Multi-anode installation for 50-cycle supplies

IN the motive power for the 50-cycle electrification between Aix-les-Bains and La Roche-sur-Foron, the French National Railways are experimenting with all the principal methods of using

an industrial frequency supply for traction. Rectifier equipment has therefore been included, and has been applied to a motor coach and trailer set and to the locomotive illustrated. The installa-

tions differ in that the motor coach uses single-anode rectifiers of the ignitron type, while the locomotive equipment has two multi-anode pumpleless rectifiers.

It will be seen from the illustration that the locomotive is very similar in appearance to the Bo-Bo design used on the Paris-Lyons main line, and it was built by using mechanical parts of these machines. It would not have been practicable to provide for alternative operation on 1,500 V. d.c. without making structural alterations, and therefore this was not done as it was desired to have a unit with rectifiers available in as short a time as possible for the purpose of comparative tests. The four axle-hung motors are controlled by variation of the voltage applied to the rectifier anodes, using fixed and tapped secondary windings on the transformer which can be connected so that their voltages are complementary or in opposition to each other. Some further details of the control scheme were given in our November 30, 1951, issue. The locomotive has a continuous rating of 2,600 h.p. at 37 m.p.h., corresponding to a tractive effort of some 26,500 lb.



Photo.]

Alsthom Bo-Bo rectifier locomotive at Annecy

[A. G. Nymeyer

RAILWAY NEWS SECTION

PERSONAL

Mr. Marcel de Vos, Director General, Belgian National Light Railways, has been appointed Director General, Belgian National Railways, in succession to Mr. F. Delory, who has retired.

We regret to record the death on November 2, at the age of 54, of Mr. R. H. Robertson, C.M.G., General Manager, Sudan Railways, 1946-50.

Mr. E. C. Buck has retired as District Mechanical Engineer, Royapuram, Southern Railway, India.

Dr. E. W. Reid has been elected a Director of the American Locomotive Company.

Mr. H. R. F. Kingscote, Industrial Commissioner, Canadian Pacific Railway, has retired and has been succeeded by Mr. C. A. L. Mansbridge.

Lord Wigram has consented to become President of the Railway Benevolent Institution for the year 1953, and Mr. R. A. Riddles, a Member of the Railway Executive, Chairman of the Board of Management for 1953.

Mr. F. Marsden has been appointed Acting Assistant Irish Traffic Superintendent, British Railways (London Midland, Western, and Scottish Regions), Euston, London. He previously was Shipping Traffic Superintendent.

The Minister of Transport has appointed Mr. R. C. Flowerdew, a nominee of the British Transport Commission, to be a member of the Transport Users Consultative Committee for the North-Western Area, in place of the late Mr. J. E. Rigby. Mr. Flowerdew is District Passenger Superintendent, Manchester, London Midland Region, British Railways.

Mr. Ronald Lawrence, B.Sc., Assistant to District Operating Superintendent, Birmingham (Midland), London Midland Region, who, as recorded in our October 3 issue, has been appointed Assistant District Operating Superintendent, Leeds Central, North Eastern Region, was educated at the Boys' Grammar School, Pontypridd, and University College, Cardiff. He entered the L.N.E.R. service at Glossop in 1935 as a traffic apprentice. After a period of training he was appointed Assistant Yardmaster, Ferme Park, London, in 1938 and moved to a similar position at Heaton, Newcastle, in 1941. In 1943 he became Chief Trains Clerk & Chief Controller, Leeds Central, and remained there until 1945, when he took up a similar post at Nottingham Victoria. Three years later he was appointed Yardmaster at Colwick and in 1950 became Assistant to District Operating Superintendent, Birmingham (Midland). During 1946-48 Mr. Lawrence lectured in Railway Operating at Nottingham and Sheffield Universities under the joint L.N.E.R. Universities' Scheme.

Mr. N. N. Majumdar, Financial Adviser & Chief Accounts Officer, Indian Railways Chittaranjan Locomotive Works, who has been appointed General Manager of that Administration, was born in 1897. He joined the Indian Audit and Accounts service in 1922 and served in various audit and accounts offices in India and Burma. After the separation of Burma from India his services were loaned to the Government of Burma in 1939. Early in 1942

Coastal Steamship Service, Canadian National Railways, with headquarters in Vancouver, in succession to Mr. Bernard A. Allen, who has retired. Mr. Behan was formerly General Superintendent of Transportation, Western Region, Winnipeg, and has been succeeded in that capacity by Mr. R. A. Craven.

Mr. J. J. Brangan has been appointed Assistant General Agent, British Railways, Dublin.

Colonel Sidney H. Bingham, Chairman of the Board of Transportation of the City of New York, U.S.A., has been invited to visit Calcutta, India, in December, to study plans for a 13-mile underground railway in Calcutta.

Professor F. C. Thompson, Professor of Metallurgy, University of Manchester, has been elected President of the Institute of Metals with effect from the 1953 Annual General Meeting.

Mr. F. C. G. Mills has relinquished his post as Divisional Manager, South Eastern Division, Road Haulage Executive, on grounds of ill-health. Mr. J. B. Garrett, at present Chief Officer, Organisation (Headquarters), has been appointed in his place.

Mr. W. P. Allen, who has retired as Assistant to Commercial Superintendent (Freight), North Eastern Region, recently was presented with a radio by Mr. H. A. Short, Chief Regional Officer, on behalf of his colleagues in the North Eastern Region.

We regret to record the death on October 4, at the age of 57, of Mr. L. Golightly, Chief Draughtsman, Robert Stephenson & Hawthorns Limited. He joined the company in 1911 and during the first world war served in the Army and rose to the rank of Captain. He took an active part in the formation of the Home Guard in Darlington in the second world war. In January, 1944, he was appointed Assistant Chief Draughtsman to Robert Stephenson & Hawthorns Limited and he became Chief Draughtsman in January, 1946.

Mr. H. C. Healey, who, as recorded in our October 24 issue, has been appointed Regional Ambulance Secretary, London Midland Region, British Railways, has been connected with the Railway Ambulance Centre for over 30 years. He was Secretary of the Carriage & Wagon Ambulance Corps from 1925-37, later being promoted District Secretary, for the Derby, Nottingham and Sheffield areas. In 1937 he was transferred to the Regional Headquarters of the Railway Ambulance Centre, under the Chief Officer for Labour & Establishment at Manchester. Mr. Healey, who holds the former L.M.S.R. long service gold medal and bars, was admitted to the Order of St. John of Jerusalem in the Grade of Serving Brother in May, 1938.



Mr. N. N. Majumdar

Appointed General Manager, Indian Railways Chittaranjan Locomotive Works

he went to Bombay to organise the Office of the Controller of Supply Accounts and continued to hold this position until 1945, when he was appointed Accountant General, United Provinces (now Uttar Pradesh). During the following two years he successively held the posts of Accountant General of the Central Provinces (now Madhya Pradesh), and of the Punjab. He later became Chief Auditor of the Great Indian Peninsula and Bombay, Baroda & Central India Railways, and in 1947 was appointed Member of the Calcutta Terminal Facilities Committee. On completion of special duty with the Calcutta Terminal Facilities Committee, he was appointed Financial Adviser & Chief Accounts Officer of the Bengal Nagpur Railway and in August, 1949, became Financial Adviser & Chief Accounts Officer, Indian Railways Chittaranjan Locomotive Works.

Mr. James J. Behan has been appointed Manager, British Columbia District and

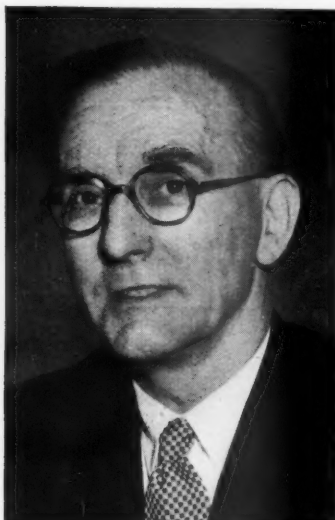


Mr. T. Harold Cooper
Vice-President (Accounting), C.N.R.
who has retired

Mr. T. Harold Cooper, Vice-President (Accounting), Canadian National Railways, who, as recorded in our October 10 issue, has retired, was born in England in 1887 and began his railway career with a constituent of the L.M.S.R. He went to Canada in 1912 and joined the Accounting Department of the Grand Trunk Railway; in 1918 he was appointed Assistant to the General Auditor. In 1922 Mr. Cooper undertook special duties preparatory to the amalgamation with the C.N.R., and he later became Assistant to the Vice-President, Finance & Accounting. He was appointed Comptroller in 1937 and a Vice-President in 1945. He had also been Comptroller of Trans-Canada Air Lines since its inception in 1937, and he organised the T.C.A. accounting system, which has been authorised by the Air Transport Board as a standard for all Canadian air lines. He was Vice-President of Canadian National (West Indies) Steamships; Chairman of the Canadian National Pension Board; and a member of the National Advisory Committee on Unemployment Insurance. One of his biggest achievements was in 1923, when he consolidated the accounts of the lines which now comprise the Canadian National system. The amalgamation involved more than 100 companies in four major groups, each with its own separate accounting method.

We regret to record the death on October 25, in his 82nd year, of Mr. Irvine Kempt, Divisional Carriage & Wagon Superintendent, Glasgow, L.M.S.R., 1923-31.

Mr. T. Crosbie, who, as recorded in our October 24 issue, has been appointed Stationmaster, Glasgow St. Enoch, Scottish Region, was formerly Chief Booking Clerk at Glasgow St. Enoch. He began his railway career at Dumfries in 1908, became Stationmaster, Bellahouston and Corkerhill Stations (1933); Stationmaster and Goods Agent, Carlisle (1938); and for a time during the war was Assistant Stationmaster, Glasgow St. Enoch. He was afterwards appointed Head Office Inspector (Relief), Operating Department, and in 1950 became Stationmaster, Paisley Gilmour Street. He later was appointed Chief Booking Clerk, Glasgow St. Enoch.



Mr. J. Hollingworth
Appointed District Goods Superintendent,
Manchester, L.M. Region

Mr. J. Hollingworth, District Goods Superintendent, Bolton, London Midland Region, who has been appointed District Goods Superintendent, Manchester, began his railway career on the L.N.W.R. at Manchester London Road in 1910. During the 1914-18 war he served with the 42nd and 66th East Lancashire Divisions and on demobilisation resumed in the District Goods Manager's Office at Manchester. He later served as Goods Agent at Gloucester and Burton-on-Trent and in 1945 was appointed Assistant District Goods & Passenger Manager, Chester. A year later he became Assistant District Traffic Superintendent, Chester, and in 1948 was appointed Assistant District Goods Superintendent, Manchester. Mr. Hollingworth became District Goods Superintendent, Bolton, earlier this year.

Mr. C. B. Clapham, B.Sc. (Eng.), A.M.I.Mech.E., A.M.Inst.T., formerly Assistant Secretary, Road Passenger Executive, who, as recorded in our October 17 issue, has been transferred to London Transport as an Officer of the Executive, with the title of Assistant to the Works Manager (Buses & Coaches), in the Department of the Chief Mechanical Engineer (Road Services), was educated at the Borough Polytechnic Technical Day School and at the University of London Goldsmiths' College. In 1914 he graduated B.Sc. (Eng.) with first class honours in civil and mechanical engineering at London University as an external student. From 1914-17 he worked in the Goldsmiths' College workshops on munitions, and lectured to the College evening classes, and for the next six years was employed on technical work for the Air Ministry's Directorate of Research in London and at the Royal Aircraft Establishment, Farnborough. In 1923 he was appointed Demonstrator & Lecturer in Mechanical Engineering at the Finsbury Technical College, and in 1926 obtained a similar appointment at the Cardiff Municipal Technical College. After two years with the International Standard Electric Corporation, he became Engineering Assistant to the Municipal Tramways & Transport Association (now the Municipal Passenger Transport Association) and later became General



Mr. S. C. Pearson
Appointed Assistant District Goods Superintendent,
Newcastle-on-Tyne, N.E. Region

Secretary of the Association and Employers' Secretary to the National Joint Industrial Council for the Road Passenger Transport Industry. In 1949 he was appointed Assistant Secretary to the Road Passenger Executive.

Mr. S. C. Pearson, Assistant (Special Duties) in the Office of the Commercial Superintendent, York, North Eastern Region, who as recorded in our October 31 issue, has been appointed Assistant District Goods Superintendent, Newcastle-on-Tyne, began his railway career at Luton in 1922, and after serving at Dunstable and Knebworth was transferred to the District Manager's Office, Peterborough, in 1928. Subsequently, in 1936, he was appointed a district representative covering the Spalding area, from which position in 1939, he was transferred to London, where he held posts in the Offices of the Goods Manager and Chief General Manager. During the recent war Mr. Pearson was seconded to the Ministry of Supply Headquarters, Shell-Mex House, London, in the capacity of Chief Transportation Officer. In 1945 he was transferred to the Passenger Manager's Office, York, as Head of the Canvasing & Development Section. He became Head of Works Section, Commercial Superintendent's Office, in 1949, and in July, 1951, was appointed to the post he has now vacated.

The Head Office Marketing Departments of Shell-Mex & B.P. Limited have been divided into two groups: Retail and Industrial, with Mr. C. K. Stringer as Assistant General Sales Manager, Retail, and Mr. H. Cunliffe as Assistant General Sales Manager, Industrial. Mr. A. C. Durie has been appointed Deputy Divisional Manager of the London Division.

Major Edward C. Peckham, Managing Director, Metalock (Britain) Limited, returned to London on October 13 from a business visit to Portugal, where he completed arrangements for the formation of a new Metalock company, Metalock (Portugal) Limited. The new company will be under the direction of Mr. Kenneth Kirkby.

Visit of Asiatic Railway Officers

*Inspection of British Railways installations
as part of a European study tour*



Members of the mission on arrival at Liverpool Street Station

A mission composed of senior railway officers from India, Pakistan, and countries of the Far East, which is visiting Europe on a study tour, has been inspecting British Railways installations this week.

At a meeting in Bangkok of the Subcommittee of Railways of the Economic Commission of Asia & the Far East (E.C.A.F.E.) it was decided to establish in Asia a training centre for senior staff in signalling and operating and organise a study tour of Europe, the U.S.A. and Japan, with the particular object of determining the best methods of increasing the capacity of single lines with heavy traffic. The Administration of Technical Assistance agreed to finance both, and for the organisation of the tour in Europe the assistance of the Economic Commission for Europe and of the International Union of Railways was enlisted.

The party arrived at Parkeston Quay from the Hook of Holland on October 31 and was met at Liverpool Street by Mr. J. L. Harrington, Chief Officer (Marine & Administration) and Mr. C. E. Whitworth, Assistant to Chief Officer (Administration), Railway Executive. Mr. Whitworth has been accompanying the mission throughout its tour in this country.

Mr. C. P. Hopkins, Chief Regional Officer, Southern Region, was host at a lunch at the Charing Cross Hotel on October 31, after which the party visited the stations and signalboxes at Waterloo and London Bridge to study suburban passenger traffic working and power signalling. In the evening a reception was held at the Ministry of Transport by Mr. Gurney Braithwaite, Parliamentary Secretary to the Ministry.

The morning and afternoon of November 3 were devoted to an inspection of the Liverpool Street-Shenfield electrification and power signalling. Mr. C. K. Bird, Chief Regional Officer, Eastern Region, presided at lunch at the Great Eastern Hotel, at which the following were present:—

Messrs. Jean Brechot, Chief of the Railway Division, Secretariat of Economic Commission for Asia & the Far East; Bukhari, Divisional Superintendent, North Western Railway, Pakistan; Suree Bunnag, Divisional Traffic Super-

intendent, State Railways of Thailand; J. I. Campbell, Civil Engineer, Eastern Region, British Railways; Siu Cheng, Deputy Director, Taiwan Railways; B. W. C. Cooke, Editor, *The Railway Gazette*; Manerto Santos Cruz, Chief Engineer, Manila Railroad Company; C. G. G. Dandridge, Commercial Superintendent, Eastern Region, British Railways; A. R. Dunbar, Divisional Operating Superintendent (Eastern) Eastern Region, British Railways; C. W. Edwards, attached to General Secretariat, International Union of Railways; M. A. Faruqi, Deputy Chief Engineer (Signals), North Western Railway (Pakistan); W. H. Fei, Deputy Director in Charge of Operation, Taiwan Railways; Maung Gale, District Engineer, Signals & Telegraph, Burma Railways; Harrand, General Secretariat, International Union of Railways; Aye Maung I, Traffic Manager, Burma Railways; H. C. Johnson, Divisional Operating Superintendent (Western), Eastern Region, British Railways; D. Khanna, Regional Traffic Superintendent, Western Railway, India; C. F. Klapper, Associate Editor, *Modern Transport*.

Messrs. Nguyen Ngoc Lam, Engineer, Viet Nam Railways Administration; G. A. B. Leishman, Electric Traction Engineer (London Area), Eastern Region, British Railways; B. B. Mathur, Chief Operating Superintendent, Northern Railway, India; A. Moss, Signal & Telecommunications Engineer, Eastern Region, British Railways; L. H. K. Neil, Continental Traffic Manager, Eastern Region and North Eastern Region, British Railways; L. P. Parker, Motive Power Superintendent, Eastern Region, British Railways; Charat Phai Praditsit, Assistant Signal, Telegraph & Telephone Engineer, State Railways of Thailand; Abu Prajitno, Chief of the Eastern Region, Indonesian State Railways; Joaquin Romillo, Assistant Chief Engineer, Manila Railroad Company; E. W. Rostern, Operating Superintendent, Eastern Region, British Railways; S. Sen, Chief Signals & Telecommunications Engineer, Northern Railway, India; Soemono, Manager of the Department of Way & Works, Indonesian State Railways; M. B. Thomas, Public Relations & Publicity Officer, Eastern Region, British Railways; A. J. White, Assistant Chief Regional Officer, Eastern Region, British Railways; C. E. Whitworth, Assistant to Chief Officer (Administration), Railway Executive.

Mr. Santos Cruz replied to Mr. Bird's speech of welcome to the mission.

Sir Michael Barrington-Ward presided at a dinner at the Great Western Royal Hotel, Paddington, given by the Railway Executive. Lt-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, Mr. F. L. Castle, Chairman, Railway Brakes & Signals Industrial & Export Group, and Mr. T. S. Lascelles, Director & General Manager, W. R. Sykes Interlocking Signal Co. Ltd., were guests.

On November 4, the party first visited the works of the Siemens and General Electric Railway Signal Co. Ltd. at Wembley, where it was received by Mr. F. L. Castle, Director & General Manager, and saw a demonstration of centralised traffic control. Mr. Castle presided at a lunch at the Great Northern Hotel, Kings Cross, given by the Railway Brakes & Signals Industrial & Export Group. In the afternoon a demonstration of methods of operating single lines was held at the offices of the Westinghouse Brake & Signal Co. Ltd. Later, the party travelled to Derby.

The morning and afternoon of November 5 were spent in visiting the mechanised yard at Toton, and the Staff Training College, and the Divisional and District Control Offices, at Derby. Lunch and dinner were offered by the London Midland Region at the Midland Hotel, Derby.

Members of the mission travelled overnight from Derby to Inverness, where they spent the morning of November 6 discussing with officers of the Scottish Region the operation and signalling of single lines. In the afternoon there was an inspection of single line working on the Inverness-Perth line. Lunch and dinner were offered by the Scottish Region at the Station Hotel, Inverness, and the Station Hotel, Perth, respectively.

Today (November 7) the party is inspecting operating and signalling on single-line sections between Perth and Edinburgh. The afternoon is being spent in Edinburgh where a reception is being held by the Lord Provost. Mr. T. F. Cameron, Chief Regional Officer, Scottish Region, is the host at dinner at the North British Hotel. The party is returning overnight to London where Monsieur Doubrière, French National Railways, and Mr. S. C. Murphy, Continental Department Southern Region, will join members for breakfast at the Grosvenor Hotel on November 8 before accompanying them to Folkestone by the "Golden Arrow."

The mission will spend some days in France as guest of the French National Railways. Before visiting Britain it toured Italy, Western Germany, Belgium, and the Netherlands as guest of the Italian State, German Federal, Belgian National and Netherlands Railways respectively.

GEORGE COHEN SONS & CO. LTD.—The report of George Cohen & Sons Ltd., for the year ended March 31, shows profits for the group of £1,825,769, compared with £868,085 a year previously. After E.P.L., profits tax, and income tax, £714,269 remained, and the final net profits attributable to members of the holding company were £704,018, an increase of £372,035. With the balance of £65,707 brought in, £440,422 was available for dividends on the 4½ per cent. preference stock and the ordinary stock (26 per cent. for the year).

Application for Increase in Freight Charges

The British Transport Commission announced on November 5 that it had applied to the Minister of Transport to exercise his powers under Section 82 of the Transport Act, 1947, and to authorise an increase in railway freight and dock and canal charges limited to 5 per cent.

A statement by the Commission explains that as an unavoidable consequence of the general rise in prices during 1951 and in particular of the substantial wage increases granted in the autumn, the B.T.C. applied in November, 1951, to the Minister to increase railway freight charges and dock and canal charges by 10 per cent. This increase was granted on December 31, 1951.

Rise in Costs

As a result of this and other adjustments, it is pointed out, the Commission had hoped that in 1952, as in 1951, it would be possible to balance accounts and possibly to produce some surplus towards reducing the deficiency accumulated in the years before 1951; but the following major items of increased cost not allowed for in previous calculations have been incurred during the year 1952. Their effect in a full year will be as follows:—

Month (1952)	Increase in	£ million
January...	Coal prices	5.0
February...	Steel prices	2.5
March...	Fuel duty	5.5
October...	National Insurance	1.3
Oct./Nov.	Wages (estimated)	18.0
		£32.3

These increased costs, the B.T.C. statement continues, with a loss of about £2 million a year resulting from the modification of passenger charges which had been approved by the Transport Tribunal, will have been borne for only part of 1952, when the Commission was helped by economies and by reductions in its budgeted expenditures and by increases in provincial bus fares. It is clear, however, that these economies and other items cannot carry in 1953 the full burden of the increased costs set out above.

In all these circumstances, it is said, the Commission has come reluctantly to the conclusion that some increase in road and railway freight charges and in dock and canal charges cannot be longer deferred and, in the desire to keep the increase to the smallest possible figure, it has applied to the Minister to exercise his power under Section 82 of the Transport Act and to authorise an increase in rail freight, dock and canal charges limited to 5 per cent.

With a similar increase in road haulage rates, this is estimated to produce additional revenue of £15 million a year. The proposed increase of 5 per cent would bring the average level of freight charges by rail up to 130 per cent over prewar compared with a weighted average increase in costs of about 160 per cent.

Passenger Fares

The whole question of passenger fares will be brought under review. Changes in the maxima laid down in the charges scheme now in force entail submission of new or amending schemes to the Transport Tribunal or to the licensing authority concerned.

Tracing the events in 1951-52 bearing on main-line and London Transport pas-

senger fares, the B.T.C. statement points out that the passenger charges scheme submitted to the Transport Tribunal in April, 1951, stated that the increases in passenger rates proposed were justified on the financial position as it was expected to be in 1952; it was shown that road and rail passenger fares had lagged behind rising costs and that if the charges scheme was approved the average cost of travel would only be about 75 per cent over prewar in the London Area and about 90 per cent outside London, whereas leading factors of cost had risen by amounts varying from 115 to 320 per cent over prewar. The two main elements in its financial forecast, the Commission stated in submitting the scheme, were the estimated level of costs and the estimated level of traffics in 1952 and the trend of the former was upward and of the latter downward.

Intervention by Minister

The passenger charges scheme was eventually approved by the Transport Tribunal, with a few changes, in February, 1952, but, after intervention by the Minister of Transport, the increases in railway fares outside London which the Tribunal had approved were modified and their introduction delayed until September 1, 1952. Meanwhile certain reductions in fares authorised by the Tribunal came into force on May 1, 1952. As regards passenger fares in the London Area, the increases sanctioned by the Tribunal came into force on March 2, 1952, but after intervention by the Minister certain modifications resulting in reduced revenue were introduced on August 31, 1952. The net financial effect of these modifications is a reduction in revenue of the order of £1.9 million a year.

Meanwhile, as from January 1, 1952, British Railways increased their monthly return fares by 10 per cent, which they were entitled to do, in anticipation of the Transport Tribunal's decision on the passenger charges scheme submitted the previous April, which was then still under consideration.

Co-ordination of Transport

Two articles by Mr. Gilbert J. Ponsonby in *The Times* of October 20 and 21, in which the author made suggestions for furthering the co-ordination of transport, have been followed by several letters debating his point of view.

Professor Gilbert J. Walker, in a letter published on October 29, carried further Mr. Ponsonby's point that "it is on internal policy, especially railway charges, that so much remains to be said and done." He proposed that the British Transport Commission should be encouraged to proceed with the closing of branch lines and intermediate stations at a quickened pace.

Secondly, Professor Walker suggested that those responsible be instructed to superimpose on a classification of merchandise (according to loadability or other appropriate principle) a classification of stations, according to cost of handling, and a classification of routes, according to costs of conveyance. A charges scheme in which the rate on a consignment was varied not only according to the nature of the merchandise, the size of the load, and the mileage, but also according to the cost of handling at the particular stations at which it was to be loaded and unloaded,

and according to the costs of conveyance over the routes along which it was to be hauled, would cause railway rates to conform very closely to the pattern of cost and relative profitability which, Mr. Ponsonby had argued, must replace the canon of equity in a competitive transport market.

Professor Walker considers that the obligation of common carrier could remain, and so could publication of rates and the fixed tariff—all three would cease to be disabling burdens once railway rates accurately reflected the costs of performing the individual services.

Referring to a letter from Mr. Ernest Davies, M.P., in the October 27 issue, Professor Walker says that a transport system such as he appeared to envisage, assuming an obligation to run unremunerative services and to keep open uneconomic lines, could only be worked by an authority endowed with absolute monopoly and with powers to direct traffic to the means chosen by the provider of transport. So long as there were safeguards limiting monopoly, the "co-ordination" of transport could be brought about only by the means of an adjustment to (railway) rates in the sense recommended; and once that readjustment had been made, transport would be co-ordinated as effectively by competition as by the deliberate act of an all-powerful monopoly.

Locomotive & Carriage Institution

The Locomotive & Carriage Institution of Great Britain & Eire, whose annual dinner will be held on November 22, was founded in 1911, as the Locomotive Inspectors' and Foremen's Association, with the object of advancing knowledge of, and exchanging information on, the design, construction, operation, and maintenance of railway motive power and rolling stock. Membership is open to those in the mechanical and electrical engineer's, carriage and wagon engineer's and motive power departments of British Railways and in Eire, or corresponding positions under the London Transport Executive. The classes are: Fellow, Associate Fellow, Member, Associate Member, Associate, and Student. The annual subscription for a Fellow is 20s., plus 10s. entrance fee.

The activities of the Institution include the reading of papers, discussions, visits to industrial undertakings, and inspection of railway equipment and operation at home and abroad. Before the war there were tours of the railways of Switzerland, Sweden, Germany, Belgium and Ireland. In 1951 members paid two week-end visits to Holland and in May last made a five-day tour of Switzerland.

A summer outing is arranged every year and occasional social evenings are held. Because of the increase in membership a provincial centre has been established at Doncaster, catering for parts of the Eastern and North Eastern Regions of British Railways. The president of the Institution is Mr. T. C. B. Miller, District Motive Power Superintendent, Stratford, Eastern Region.

EGYPTIAN RAILWAYS ALLOCATIONS.—An agency message from Cairo states that the Egyptian State Railways Board has decided to allocate E£600,000 for the establishment of a new diesel workshop at Bulak, Cairo, and E£364,500 for renewals.

Retired Railway Officers' Society

Record number of acceptances for the autumn luncheon

The autumn luncheon of the Retired Railway Officers' Society, was held at the Criterion Restaurant, Piccadilly Circus, W.1, on November 4, under the chairmanship of Mr. W. M. Perts, President. The number of acceptances, which was 158, was a record in the history of the Society. Among those present were:—

Guests

Messrs. Jacques Abady, Q.C., R. J. D. Arthurton, L. P. Ball, H. H. Barton, O. C. Baylis, R. P. Beddow, C. K. Bird, H. J. Birkbeck, R. C. Boorman, Sir Robert Burrows, Messrs. J. I. Campbell, W. B. Carter, B. W. C. Cooke, Lt.-Colonel Davis, Messrs. R. P. Davis, J. Elliot, D. Fraser, J. M. Fullerton, C. Furber, M. H. B. Gilmour, Sir Eric Gore Brown, Messrs. T. Graham, K.W. C. Grand, R. Grant, F. Grundy, J. H. S. Guest, A. Halley, H. Haigh, A. H. Hammett, G. J. Harris, R. F. Harvey, H. E. Hedges, H. Holcroft, E. S. Hunt.

Messrs. W. P. Keith, D. R. Lamb, H. C. Lang, A. T. Lennox-Boyd, J. T. Lynch, A. B. Macleod, Sir Ronald Matthews, Messrs. P. J. Martin, J. Meadowcroft, W. S. Messer, W. H. Mills, W. H. Mortlock, D. Murray, R. Norrish, J. F. Nuttall, W. J. Obersteg, G. Oger, C. G. Page, L. B. Parker, S. E. Parkhouse, V. Radford, H. G. N. Read, W. B. Richards, R. A. Riddles, G. Ryder, L. S. Sanson, G. H. Searle, A. Shoulger, G. H. Skelton, S. Sweeney, J. Taylor Thompson, H. E. Thompson, F. W. Tipton, J. C. L. Train, W. H. Vine, J. W. Watkins, H. R. Webb, R. C. E. Weaver, F. D. Wharton, S. Williams, A. Wood, W. E. Yates.

Members

Messrs. A. W. Arthurton, G. B. Barton, Miles Beevor, A. Bond, H. L. Bond, A. F. Bound, W. P. Bradbury, L. C. Brittlebank, J. Briggs, F. S. Bridge, W. A. Brown, H. J. Burcham, A. L. Castleman, F. H. Colebrook, A. D. Cook, H. J. Comber, S. O. Cotton, F. E. Cox, O. Cromwell, E. H. Darby, Ashton Davies, W. R. Davies, Colonel R. B. Emerson, Messrs. W. J. England, J. W. Enser, E. Falconer, B. P. Fletcher, L. C. Glenister, E. D. Grasett, H. J. Green, R. O. Griffiths, A. J. Grinling, H. J. Guest, H. H. Halliday, E. B. Hassall, G. Hickling, R. P. Humphrys.

Messrs. W. E. Johnson, C. Johnstone, J. H. Laundy, W. J. Lovejoy, S. J. Marchant, E. W. Mauger, A. H. McMurdo, J. Messer, A. S. Mills, J. P. Milton, H. W. Moore, G. Morton, J. Murray, A. W. Norman, P. Nunn, C. N. Peck, W. M. Perts, W. H. J. Pyne, A. J. Rice, V. A. M. Robertson, H. E. Roberts, T. W. Royle, C. I. Routh, H. Rudgard, A. A. Ryan, F. Sadler, W. J. Sawkins, S. H. Scholes, T. H. Seaton, F. H. Sedgwick, H. J. Smedley, F. Smith, H. E. Stratton, S. J. Symes, Major General G. S. Szlumper, Alderman W. T. Venton, Messrs. G. J. Walker, J. R. Ward, E. Wharton, H. E. O. Wheeler, J. R. Worrall.

Mr. Perts, in proposing the toast of the Guests, referred first to Mr. A. T. Lennox-Boyd, Minister of Transport, who had come to the luncheon directly from the opening of Parliament. He expressed the pleasure of members at the presence of Messrs. John Elliot, Chairman, Railway Executive; J. W. Watkins, Chief Regional Officer, London Midland Region; K. W. C. Grand, Chief Regional Officer, Western Region; and C. K. Bird, Chief Regional Officer, Eastern Region. Referring to the presence of three former Chairmen of the main-line railway companies, Colonel Sir Eric Gore Browne (Southern Railway), Sir Robert Burrows (L.M.S.R.), and Sir Ronald

Matthews (L.N.E.R.), Mr. Perts said that the success of British Railways had been built on the foundations inherited from the former companies. He stressed that the Society was not one for people who were on the shelf, and said that they followed all events with expectancy and interest. As an example of what the Society did, he quoted Dr. Johnson's phrase: "A man Sir, should keep his friendship in constant repair."

Mr. Lennox-Boyd, replying, said they had just started a great new Parliamentary session. It would fall to the Minister of Transport to play a great part and he was glad to be able to help shape the future of the railway industry. This country had an immense railway tradition. He hoped the Bill that would be published on the following day would command universal agreement on the railway side. The reshaping of charges would be taken into account and he believed a new opportunity was being taken in a generous and liberal way. The Bill would represent the Government's broad approach on charges. Referring to decentralisation, he said they were awaiting the plan that would be put forward and he believed that local loyalties and central guidance were not incompatible.

Mr. John Elliot, also replying for the guests, joined his thanks to the Society with those of Mr. Lennox-Boyd for inviting him to be present, and said they were at the beginning of a most important Parliamentary session. Mr. Lennox-Boyd had done the utmost possible to grasp the problems they had been concerned with for years and undoubtedly had the well-being of the railways at heart.

Sir Ronald Matthews, proposing the toast of success to the Retired Railway Officers' Society, expressed his pleasure at seeing so many former officers present. Many of the retired officers were leading a strenuous life and he thought they had set a wonderful example of loyalty to those who would follow. He hoped the old company loyalties and rivalries would be fostered and encouraged in the future and that it would be possible to get away from the deplorable word Region. He would also like to see loyalties encouraged by restoring locomotives and carriages to the pre-nationalisation liveries.

Major General G. S. Szlumper, replying, said that the Society now had 182 members, 14 per cent of whom were over 80. He referred to superannuation and said that as, in many cases, it was based on the economic conditions of many years ago, hardship was felt by some retired officers and he hoped something could be done about it.

Mr. G. Morton proposed the health of the Chairman, and Mr. Perts replied.

UNITED STATES RAILCAR CREWS.—The main aim of the U.S.A. railways in the present rapid spread of "RDC" railcar operation of passenger services is not only economical fuel and maintenance costs, but also the economy of smaller train crews, which on many workings consist of driver and conductor only. The Order of Railway Conductors has recently appealed to the Massachusetts Department of Public Utilities against such limitation of train-staffs by the Boston & Albany (New York Central) with its "Beeliners," but the Department has ruled that even if as many as four of these cars are worked multiple-unit as a train, a staff of engineman, "fireman," conductor, and trainman is adequate, and that the fireman must act also as brakeman if necessary.

Opening of European Goods Timetable Conference



Mr. John Elliot, Chairman, Railway Executive, welcoming delegates to the European Goods Timetable Conference at Church House, London, on November 3 (see editorial note on page 506). Left to right: Messrs. L. H. K. Neil, R. H. Hacker, David Blee, John Elliot, and A. Houska, Chairman of the Conference and leader of the Czechoslovak delegation

Parliamentary Notes

Railway Freight Charges

Mr. A. T. Lennox-Boyd, Minister of Transport, in the House of Commons on October 27 pointed out that until a merchandise charges scheme was in operation, he could not require the Transport Tribunal under Section 80 of the Transport Act, 1947, to review charges for long-distance freight traffic. The matter had been raised by Lady Tweedsmuir (Aberdeen South—C.) who deprecated abandonment of the flat-rate scheme for long-distance fish transport, with its adverse effect on fisheries in Northern Scotland.

"Whether the present taper in rail merchandise charges should be increased or reduced," Mr. Lennox-Boyd added, "is one of the many important issues likely to be discussed before the Transport Tribunal when the draft Merchandise Charges Scheme is considered by it."

Railway Workshop Steel Supplies

A written reply by Mr. A. T. Lennox-Boyd on October 30 on steel supplies for railway workshops with reference to the possibility of unemployment through lack of steel, stated that railway steel supplies should be somewhat easier in the next allocation period. He understood the increased supply would all be used for the rolling stock programme, but the B.T.C. could not say at this stage what new construction of coaches would be possible in 1953.

To a suggestion that, as more steel was being made available for the motor industry in the last quarter of 1952, extra steel should be allocated to British Railways, Mr. Gurney Braithwaite (Parliamentary Secretary to the Ministry of Transport) wrote in reply that a small additional allocation of steel was made to the B.T.C. in the fourth quarter of 1952.

Asked to state the quantity of steel supplied to the Commission for their railway wagon department for the years 1949, 1950, 1951, and the latest date in 1952, Mr. Braithwaite, in a written answer, said that a bulk allocation of steel was made to the B.T.C. for the main-line and London Transport railways; the Commission apportioned it to its varying needs.

Rabbit Pest on Railway Property

Sir Thomas Dugdale (Minister of Agriculture) said in reply to a question on October 30, as to help for farmers whose land was infested by rabbits from adjacent railway embankments, that there was close liaison between the Railway Executive and County Agricultural Executive Committees, and the Railway Executive was always ready to deal with any rabbit infestation on railway property brought to its notice.

Manchester Travel Facilities

Mr. A. T. Lennox-Boyd on October 27 pointed out that a survey of transport organisation within a 50-mile radius of Manchester, suggested by Mr. Ellis Smith (Stoke-on-Trent South—Lab.) did not seem to be desired by local authorities or to justify the effort and expense. He agreed that travel facilities for workers in that area were of the utmost importance; Manchester had led the way in railway, canal, and airport construction, and he would be glad to listen to any local representations.

R.H.E. Depots

Mr. A. T. Lennox-Boyd stated on October 27 that he had visited various British Road Services depots since taking office;

these visits had confirmed his previous impression that all ranks in the Road Haulage Executive were doing their best to discharge their responsibilities under the Transport Act, 1947. Whether better services could not be provided by private enterprise was quite another matter.

In reply to a suggestion by Mr. James Callaghan (Cardiff S.E.—Lab.) that the Minister's visits showed that R.H.E. services were satisfactory, Mr. Lennox-Boyd said much information on which he relied came from the volume of correspondence received by the late Administration, but he had information from many other sources on which to make up his mind.

Fruit Sales in Railway Catering

Dr. Charles Hill (Parliamentary Secretary to the Ministry of Food) said on October 29 that he would refer to the Ministry of Transport a suggestion that steps be taken to ensure availability of home-grown fruit for sale at reasonable prices in refreshment rooms and refreshment cars.

Long-Distance Motorcoaches

Lord Lloyd stated on behalf of the Government in the House of Lords on October 21 that the whole system of licensing motorcoaches was conducted under the Act of 1930; the object was to maintain a reasonable balance of road and rail services—and, equally important, between the competing road services. One of the objects, to help the railways, was to set an upper limit to road traffic; but within that upper limit he did not think there had been any reduction in that traffic.

Circumstances in regard to the whole question of long-distance coaches, he added, had changed considerably since 1930. An entirely new situation had been created by the nationalisation of the railways and of interests and assets in the road passenger services; and there had been an increasing disparity between road and rail fares.

As a result, Lord Lloyd said, the Government felt that the time had come to review the whole system. Therefore the Minister of Transport had set up a committee to inquire into the operation of the Act. When the Minister had received a recommendation from the committee, he would no doubt take what action he felt appropriate.

Passenger Port Facilities

Lord Balfour of Inchrye during the House of Lords debate on the tourist industry on October 21, remarked on the unsatisfactory Customs examination premises at Southampton (other than the Ocean Terminal), at Dover, and at Waterloo. He also commented on the unsatisfactory arrangement of immigration formalities, resulting in British subjects being first through immigration and Customs and travelling from Harwich to London by the main boat train, whilst non-British passengers had to travel by the relief, which, he added, "had no corridors, no restaurant car, very often was in a dirty state, and always arrived unpunctually." The absence of a suitable place for Customs examination at Waterloo was caused, he said, by the refusal of the Government to sanction capital expenditure by British Railways on new premises.

Lord Lloyd, replying for the Government, said that Lord Balfour had complained not unreasonably about some of the facilities at ports. They could not do everything all at once, but they were doing all they could. There was to be a new car terminal at Dover, which he hoped would be a great improvement, and a new

passenger terminal at Newcastle, for the Bergen Line. He would bring Lord Balfour's remarks to the notice of the B.T.C.

Theft in Transport Services

The Earl of Birkenhead (Lord in Waiting) in the House of Lords on October 28 in reply to a question by Lord Semphill circulated the following statement:

"1. The B.T.C. and the two airways corporations have provided the following information:—

(a) British Railways

The following claims were paid in respect of traffic (excluding minerals and livestock) which was lost, stolen and pilfered:

	£
1948	2,778,367
1949	1,728,986
1950	1,406,835
1951	1,707,466

(b) British Road Services

1948, 1949, 1950 (no figures are readily available).

1951: Claims paid and outstanding in respect of goods lost, stolen, pilfered and damaged amount to £653,609, of which about one-third is estimated to represent claims for damage.

(c) B.O.A.C., and (d) B.E.A.

The corporations estimate that thefts of goods carried by them or entrusted to them for carriage were as follows:—

	B.O.A.C.	B.E.A.
	£	£
1946-47	20,784*	970
1947-48	38,388*	3,600
1948-49	43,383*	1,230
1949-50	28,107	2,430
1950-41	15,785	2,500
1951-52	40,000	5,000

* Excluding British South American Airways Corporation for which figures are not readily available

"2. The total value of the goods carried by the various undertakings is not known."

Questions in Parliament

Co-ordination of Transport

Mr. Arthur Lewis (West Ham North—Lab.) on October 27 asked the Minister of Transport, whether he would arrange to have published as a White Paper or in other convenient form, the various independent reports for and against the co-ordination of transport, including the 1930 Report of the Royal Commission on Transport, the 1931 Report of the Royal Commission on the Co-ordination and Development of Transport, and the Report of the Conference on Road and Rail Transport in 1932 under the chairmanship of the present Minister of State for Economic Affairs (Sir Arthur Salter).

Mr. A. T. Lennox-Boyd: No. I see no sufficient reason for the Government to republish in a collection the reports, papers, and books on this subject.

Transport in North London

Mr. Austen Albu (Edmonton—Lab.) on October 20 asked the Minister of Transport, whether he had considered a memorandum from the North London Conference of Local Authorities, and whether he was in a position to make a statement on priority measures to improve transport facilities in North London.

Mr. A. T. Lennox-Boyd wrote in reply: I have considered the memorandum and I hope soon to make a statement on the Report of the London Plan Working Party which will include an indication of the priority to be given to measures to improve travel facilities in North London.

Staff & Labour Matters

Pay Rise for L.T.E. Railwaymen

In line with their colleagues on British Railways, salaried and conciliation staff of London Transport Railways receive an increase of 7s. a week from November 1. This decision follows talks between representatives of L.T.E. and of the N.U.R., A.S.L.E.F., and T.S.S.A.

Engineers' Wage Claim

The executives of the 38 unions affiliated to the C.S.E.U. decided last week to reject the offer of the employers to raise the wages of engineering employees by 7s. 4d. a week, and by 7s. 6d. for shipyard workers. Proposals that overtime and piecework be banned to enforce the men's demands did not meet with much support. A meeting with the engineering employers was arranged for November 6, and one with the shipbuilding employers for today.

Contracts & Tenders

The Indian Government has placed the following further contract under its 1953 programme:—

Alti Forni e Acciaierie D'Italia—Ilva, Genoa, Italy: 4,860 pairs of broad-gauge wheels and axles and 12,540 pairs of metre-gauge wheels and axles.

The South African Railways have placed the following contracts:—

Compagnie Centrale de Construction S.A., Haine-Saint-Pierre, Belgium: 700 type "B" high-side bogie wagons.

Gregg Car Co. Ltd., Belgium: 30 "DD" type wagons; 150 2-ft. gauge open wagons.

S.A. des Ateliers de la Dyle, Louvain, Belgium: 150 type "XP" tank wagons.

S.A. La Brugeoise et Nicaise & Delcuve, Belgium: 500 "OZR" type bogie fruit vans.

These contracts are in addition to 3,800 wagons recently ordered from Dorman Long (South Africa) Limited, and the South African Railways' normal internal production.

Le Matériel Electrique S-W, Paris, has recently received an order from the Algerian Railways for ten metre-gauge Co-Co diesel-electric locomotives. The locomotives will be rated at 1,300 h.p., and will weigh 72 tonnes in working order. Maximum speed will be 53 m.p.h.

British Railways has a total of 82 sets of diesel and electrical equipment for 350-h.p. 0-6-0 type diesel-electric shunting locomotives on order from the English Electric Co. Ltd.; 57 sets are on order under the 1953 building programme and these include the 31 referred to in our May 9 issue. The other 25 sets were ordered under the 1952 programme.

The Government of Pakistan is inviting tenders for the supply of various rail crossings and switches. The tenders, further details of which are given under Official Notices on page 531, close on December 13 at 11 a.m.

The Government of Cyprus is inviting tenders for the purchase as a whole, or in lots, of various 2 ft. 6 in. gauge railway material. Rails, steam locomotives, passenger coach underframes, wagons, and miscellaneous scrap are included in the material offered, tenders for which close at noon on December 10. Further details

are given under Official Notices on page 531.

The Board of Trade, Special Register Information Service, recently reported a call for tenders by the South African Railways for the supply of:—

300 four-feed locomotive lubricators sight-feed type.

50 five-feed locomotive lubricators sight-feed type (three position).

Tenders should reach the Chairman of the Tender Board, P.O. Box 7784, Johannesburg, by 9 a.m. on Thursday, November 20. A copy of the tender documents was available at the Board of Trade, Commercial Relations and Exports Department, for inspection by representatives of United Kingdom manufacturers until November 6, after which date it has been available on loan in order of written application. Reference C.R.E./36041/52 should be quoted. Copies of the three drawings referred to in the specification can be inspected at the Office of the S.A.R. Stores Superintendent, 26, Cockspur Street, London, S.W.1, or may be purchased from the Chief Stores Superintendent Johannesburg.

NEW HAVEN RAILBUSES.—A further development in the move for more economical and attractive operation of branch and other subsidiary routes is the "FCD" type railbus now operating over the 17-mile Mansfield-Fall River branch of the New York New Haven & Hartford Railroad. This line had been closed for passenger traffic, but the reopening with the railbus has met with such success that ten more of these units are on order. They are of Mack-General Electric manufacture; each railbus seats 50 passengers, and is manned by driver and conductor only.

Notes and News

Chief Boiler Inspector Required.—Applications are invited for the post of chief boiler inspector required by a British railway company operating in Chile and Bolivia. See Official Notices on page 531.

Vacancy for Draughtsman.—Applications are invited for the post of draughtsman with experience in the preparation of engineering drawings for reproduction in technical journals. See Official Notices on page 531.

Engineering and Technical Staff Required by the South African Railways.—Applications are invited from suitably qualified candidates, not over 45 years of age, for employment by the South African Railways. See Official Notices on page 531.

Vacancy for Electric Traction Engineer.—Applications are invited for the post of electric traction engineer, between 30 and 40 years of age, required by a firm of manufacturers in the South of England. See Official Notices on page 531.

Through Goods Transit from Spain to Scotland.—On October 23 three Transfesa (Spanish) wagons arrived in Scotland each loaded with 13,180 kg. of Almerian grapes in direct transit from Spain via the Dover train ferry. This was the first through transit of grapes from Spain to Scotland, and represented the longest wagon haul from Spain—approximately 1,700 miles from the point of loading in Southern Spain to the West of Scotland. The wagons are dual-purpose ventilated refrigerator vehicles. Overland rail transport from Spain without transshipment at the Franco-Spanish frontier has been made possible by the introduction of Transfesa (Spanish)

British Delegates at Berne Conventions Conference



Mr. Denis O'Neill, Under-Secretary, Ministry of Transport, who signed the conventions on behalf of Great Britain is second from left; beyond him are Messrs. A. M. G. Keen, G. A. Barry, Miss M. Armstrong, Messrs. L. H. K. Neil, G. S. M. Birch, and H. J. Bourn (see editorial article on page 508).

wagons with interchangeable axles to permit running over the Spanish broad gauge and the standard gauge railways in France and Great Britain.

Diesel Engine Users' Association.—A paper on "Torsional Vibration in Diesel Engines—Some Observations and Practical Aspects" will be read before the Diesel Engine Users' Association by Mr. C. H. Bradbury on Thursday, November 20. The meeting will be held at Caxton Hall, S.W.1, at 2.30 p.m.

Improved Departure Indicator at Leeds City.—A new Benn & Cronin indicator has been installed in the concourse at Leeds City Station, North Eastern Region. The illustration shows how the design has been styled to harmonise with the proportions of its surroundings, to which the octagonal form and teak colouring of the



Roller blind type indicator with built-in clock and illuminated time sheets at Leeds City Station

indicator contribute a new and attractive feature. The ordinary lighting of the station is adequate for the roller blind and clock, but special strip lighting has been installed at the ends to illuminate the complete combined list of City and Central stations departures.

Institution of Locomotive Engineers.—Dr. H. I. Andrews will read a paper on "Stresses in Locomotive Coupling and Connecting Rods" at a meeting of the Institution of Locomotive Engineers, to be read at the Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 5.30 p.m. on Wednesday, November 19.

Record Tourist Traffic from U.S.A.—The British Travel & Holidays Association reports that 16,700 American visitors arrived during September compared with 13,500 during September 1951. For the nine months January-September tourist traffic from the United States was 31 per cent in excess of the same period last year. Sir Alexander Maxwell, Chairman of the Association, states that it is expected that dollars to the value of approximately £43 million—including fare payments—will be earned from the North American tourist trade this year. September arrivals brought

the total of overseas visitors for the nine months January to September to approximately 600,000—2 per cent more than for the same period last year.

London Commercial Service Annual Dinner.—Under the Chairmanship of Mr. W. H. Vine, over 120 of the staff of British Railways London Commercial Service held their fifth annual dinner on November 3. Those present included officers of the four Regions serving London, of the Road Haulage Executive, and of the Railway Clearing House.

Tyne Improvement Commission.—The Tyne Improvement Commissioners are undertaking major port development schemes, and invite applications from civil engineers for appointment to its technical staff in connection with the design, construction and maintenance of dock and harbour works. See Official Notices on page 531.

Institution of Railway Signal Engineers.—At a meeting of the Institution of Railway Signal Engineers to be held at the Institution of Electrical Engineers, Savoy Place, W.C.2, at 6 p.m. on Wednesday, November 19, there will be an informal discussion on the paper entitled "Track Circuits in d.c. Electrified Areas," which was read by Mr. D. G. Shipp in London on March 5.

Record British Railways Coal Traffic.—British Railways latest weekly forwarding of deep-mined and opencast coal up to 6 a.m. on November 3—3,293,560 tons—was the highest for seven months. During the week ended October 25, 218,629 tons of iron and steel were conveyed from the principal steelworks and 312,000 tons of iron ore were carried.

Institute of Transport (Northern Ireland Section).—A meeting of the Northern Ireland Section of the Institute of Transport was held in the headquarters of the Ulster Transport Authority, 21 Linenhall Street, Belfast, on October 16. A paper entitled "Multi-engined Diesel Train Development" was read by Mr. J. D. Reid, a member of the Engineering Division of Leyland Motors Limited, who travelled to Northern Ireland to address the Section.

Peruvian Corporation Traffic Receipts.—For the year to June 30 revenue from railways and lake steamers operated by the Peruvian Corporation Limited, together with £45,781 of other revenue, totalled £821,558, against £738,789. Operating revenue rose from £528,381 to £692,165. Final total profit, after crediting net revenue of subsidiaries, amounted to £375,400, comparing with £514,420. Debt service takes £446,073, and the debit balance of £70,673 compares with a credit balance of £51,958 the year before.

Gloucester Railway Carriage & Wagon Co. Ltd.—The Chairman of the Gloucester Railway Carriage & Wagon Co. Ltd., Sir Leslie Boyce, states in his report for the year ended May 31, 1952, that the order book continued to be very satisfactory and that during the year under review many important contracts had been secured in the face of keenest competition from both home and abroad. One of these orders was for 104 rapid transit cars for the Toronto Transportation Commission. Continuous work for the vast majority of employees is ensured for a considerable period, he adds, provided that improved supplies of material become available. The

report recommends payment of a final dividend at the rate of 4½d. per 10s. unit, less tax. Net profit attributable to the Gloucester Railway Carriage & Wagon Co. Ltd. was £122,167, compared with £141,372 in the previous year.

Harrow Accident Inquest Verdict.—The inquest on the 112 persons killed in the accident at Harrow & Wealdstone Station, L.M.R., on October 8 was concluded at Hendon on October 30. A verdict of accidental death was returned.

British Road Services Receipts in 1951.—In the article on August-September operating results on page 479 last week, it was stated that British Road Services finished last year with a deficit of £1,106,400. This was the figure for 1950, and the result for 1951 should have been shown as a working surplus of £3,246,589.

G.N.R.(I.) Best-Kept Stations.—The winners of the first prizes for the 1952 competition for the best-kept stations on the Great Northern Railway (Ireland) are: (Larger stations, all areas), Clones; (Northern Section) Tynan; (Southern Section) Ballyhaise; (Western Section) Bundoran Junction.

Diesel-Mechanical Locomotive for Callao, Peru.—The Hunslet Engine Co. Ltd., has shipped a 52-ton six-wheel diesel-mechanical locomotive of 500 b.h.p., 35,000 lb. tractive effort and top speed of 33 m.p.h. for heavy dock shunting at the port of Callao, Peru. A six-speed gearbox is fitted, and the wheelbase is only 9 ft., enabling it to go round 120-ft. curves.

London-Buxton Through Coaches.—A through coach service between St. Pancras and Buxton, L.M.R., was instituted on November 3. Through carriages for Buxton are attached to the 2.15 p.m. St. Pancras to Manchester and the 9 a.m. Manchester Central to St. Pancras expresses. Transfer of the through coaches from the Buxton-Millers Dale service to the London trains takes place at Millers Dale.

Institute of Traffic Administration.—The examination of the Institute of Traffic Administration for 1953 will be held on Friday and Saturday, May 8 and 9, in London and such other centres as are found necessary. Applications to sit for the examinations must be in the hands of the Secretary of the Institute before March 8, 1953. Applications for partial, or complete exemption must be submitted before January 8, 1953.

Closing of L.M.R. Stations.—The London Midland Region announces that the following stations were closed permanently on Monday November 3: Musgrave (between Kirkby Stephen and Appleby), closed for passengers, parcels and passenger train merchandise, also freight traffic; Flecknoe (between Leamington Spa and Weedon), closed for passengers; and Farthinghoe (between Banbury and Verney Junction), closed for passengers. Alternative road services are available for passengers.

Metropolitan-Vickers Long Service Association.—The Long Service Association of Metropolitan-Vickers Electrical Co. Ltd., held its annual social gathering in one of the staff canteens at the Trafford Park Works on October 28. The qualifications for joining the L.S.A., which was founded in 1923, are 30 years' service for men and

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is exempted from the provisions of the Notification of Vacancies Order, 1952.

ENGINEERING AND TECHNICAL STAFF REQUIRED BY THE SOUTH AFRICAN RAILWAYS

APPLICATIONS ARE INVITED from suitably qualified candidates who are not over 45 years of age for employment by the South African Railways in the capacity of:—(1) Junior and Assistant Engineer (Civil, Mechanical, Automotive and Signal). (A recognised degree/diploma in the branch of engineering concerned is required.) (2) Understudy to the Supervising Marine Engineer. (An extra first-class certificate of competency as engineer in the Mercantile Marine, with motor endorsement (B.O.T. or M.O.T.) is required.) (3) Draughtsmen (Signals) and (Electrical) and (4) Laboratory Assistants (Electrical). (A recognised apprenticeship to a trade, as well as an appropriate technical qualification, is required.) (5) Signal Fitters and (6) Electricians. (A recognised apprenticeship to the trade concerned must have been served.) Preference will be given to suitable candidates who are not over 35 years of age. Fuller particulars may be obtained from any Employment Exchange where application may be made. Applications in writing either for employment or for fuller particulars may also be made to—**THE ADVISORY ENGINEER, SOUTH AFRICA HOUSE, Trafalgar Square, London, W.C.2.**

CHIEF BOILER INSPECTOR required by British Railway Company operating in Chile and Bolivia. Only candidates with Railway training and experience should write to—**Box 6293, c/o CHARTERS, BARKER & SONS LTD., 31, Budge Row, London, E.C.4.**

EXPERIENCED and Qualified Electric Traction Engineer in the 30/40 age group is required by a well known manufacturer in the South of England. Interesting technical and commercial work with a high degree of individual responsibility. Applications from engineers with field experience of electric railways will be particularly welcomed.—**Box 649, The Railway Gazette, 33, Tothill Street, London, S.W.1.**

N.E.R. HISTORY.—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—**The Railway Gazette, 33, Tothill Street, London, S.W.1.**

27 years for women. The President, Sir George E. Bailey, who is also Chairman of the company, is in his 45th year of service; seven of his colleagues on the board are members of the L.S.A., among them Dr. I. R. Cox, Managing Director, and Sir Arthur P. M. Fleming, who holds the record for length of service, having joined in May, 1900. At this year's gathering about 1,100 members sat down to dinner, including parties from L.S.A. branches in London, Sheffield, and Motherwell.

Silverton Tramway Results.—The report of the Silverton Tramway Co. Ltd., of Melbourne, Australia, for the year to June 30, 1952, shows net profit, after tax, of £84,431, which with the amount brought forward makes an amount available of £91,048. Interim dividend No. 171 absorbed £18,750, and £30,000 is transferred to general reserve account with £31,250 provision for final dividend. The balance carried forward is £9,493. A dividend of 15d. a share is being paid. The four new locomotives delivered in October, 1951, have operated satisfactorily.

Norwegian Ambassador at B.T.H. Works.—Before attending the sixteenth annual gathering on October 24, of the B.T.H. Overseas Association, at which he was the Principal Guest, His Excellency M. Per Preben Prebensen, Norwegian Ambassador in London, visited the Main Works at Rugby of the British Thomson-Houston Co. Ltd. During a tour of part of the works, the Ambassador saw many items of large plant in various stages of manufacture. Among

THE GOVERNMENT OF PAKISTAN invites tenders for the supply to the North Western Railway of:—(a) (i) 56 sets crossings acute 1 in 12 LH(BG) of 90-R B.S.S. Rails of Medium Manganese Steel; (ii) 136 sets crossings acute 1 in 81 LH(BG) of 75-R B.S.S. Rails of Medium Manganese Steel. (b) (i) 56 sets switches 21 ft. 0 in. over-riding (Fixed heel) of 90-R B.S.S. Rails of Medium Manganese Steel; (ii) 136 sets switches 15 ft. 6 in. over-riding of 75-R B.S.S. Rails of Medium Manganese Steel. Tender documents including instructions to tenders, tender form, schedules of requirements, specifications, drawings and standard conditions of contract can be obtained from the office of the High Commissioner for Pakistan in London, Room 115, 39/40, Lowndes Square, London, S.W.1, between the hours of 10 a.m. and 3 p.m. Mondays to Fridays on payment of £5 for each set which amount will not be refunded. Tenders in sealed covers superscribed "Tender for Crossings and Switches" should be submitted direct to the DIRECTOR GENERAL RAILWAYS, MINISTRY OF COMMUNICATIONS, RAILWAY DIVISION, GOVERNMENT OF PAKISTAN, KARACHI, so as to reach him before 11 hours on December 13, 1952, at which time and date, tenders will be opened in the office of the Director Mechanical Engineering & Stores, Railway Division in the presence of any tenderers who may care to be present. The Director General Railways reserves to himself the right to reject the lowest or any tender without assigning any reason thereof and may accept any tender in part or in whole. This call is being made simultaneously in Pakistan, Belgium, Canada, France, West Germany, India, U.K. and U.S.A.

DRAUGHTSMAN with experience in the preparation of engineering drawings for reproduction in technical journals required by London publishing house. Good lettering essential. Salary according to ability. 5-day week. Write, stating age, experience, and salary required.—**Box 651, The Railway Gazette, 33, Tothill Street, London, S.W.1.**

ELECTRICAL ENGINEER, A.M. (S.A.) I.E.E., 38 years, English, now in S. Africa, experienced industrial power engineering and Stones train lighting systems, seeks change. Willing to travel anywhere.—**Box 654, The Railway Gazette, 33, Tothill Street, London, S.W.1.**

A LEADING Mutual Life Assurance Office requires a number of young men for training as outside representatives. Exceptional opportunities for advancement to those possessing a sound education and good personality, and who are prepared to work hard and prove their ability. Write stating age, which should not exceed 30, to Box No. 645, **The Railway Gazette, 33, Tothill Street, London, S.W.1.**

them was a 14,000-kVA, 11,000-volt, 500-r.p.m. horizontal waterwheel alternator for the Oldereid Power Station (Norway). Another impressive piece of equipment was the 45-ton pre-stressed forging for the electrical rotor of the first 36,000-kVA, 600-r.p.m., waterwheel alternator for the Artias Power Station, Spain.

Closing of Southern Region Abbotsbury Branch.—On and from Monday, December 1, passenger and freight train services between Upwey and Abbotsbury, in the Southern Region, will be withdrawn, and Abbotsbury, Portesham, and Coryates Halt will be closed. Upwey Junction Station will be renamed "Upwey & Broadway," and Upwey Station will be renamed "Upwey Goods." Southern National Omnibus Co. Ltd. services in this area will be augmented as necessary. Parcels and freight traffic previously handled by the Abbotsbury branch stations will be dealt with at Weymouth, Upwey Goods, and Upwey & Broadway.

Swedish Lloyd Sailings: Tilbury—Gothenburg.—During the winter season 1952-53 there are two Swedish Lloyd sailings a week in each direction between Tilbury and Gothenburg; the service is maintained by the passenger liners ms. *Saga*, ss. *Britannia* and ss. *Suecia*, the sea journey taking 36 hr. Sailings are from Tilbury on Tuesdays and Saturdays, and from Gothenburg on Wednesdays and Saturdays, except at Christmas time. Special boat trains ("Swedish Lloyd Specials") run between St. Pancras and Tilbury Riverside,

TYNE IMPROVEMENT COMMISSION

THE TYNE IMPROVEMENT COMMISSIONERS are undertaking major port development schemes and invite applications from Civil engineers for appointment to their Technical Staff in connection with the design, construction and maintenance of Dock and Harbour works. Commencing salaries will be in accordance with the qualifications and experience of the successful candidates and within the range of £462 to £741 per annum, plus a war bonus of £65 per annum. Applicants should be experienced in design and the preparation of estimates, contract documents and drawings for reinforced concrete and steel structures, retaining walls, under water foundations, small industrial buildings, water supply, etc., and should preferably have a University degree in Engineering and/or be Corporate or Student member of the Institution of Civil Engineers. Successful applicants will be required to pass a medical examination and to become members of the Tyne Commission Superannuation Fund. Applications stating age, qualifications and experience, together with copies of recent testimonials, should reach the undersigned not later than November 29, 1952.—**J. K. MCKENDRICK, Secretary, TYNE IMPROVEMENT COMMISSION, Bewick Street, Newcastle-upon-Tyne, 1.**

THE GOVERNMENT OF CYPRUS invite tenders for the purchase as a whole or in lots of the following 2 ft. 6 in. gauge Railway materials:—About 2,000 tons of flat bottomed steel rails; length of rails 30 ft., weight 30 lb. per yd. About 430 tons of odd lengths of rail and points and crossings. About 400 tons of mild steel rail fastenings. Twelve steam locomotives. Fifteen rail car underframes. Seventeen passenger coach underframes. Twenty-four box wagons. Seventy-seven open wagons. Sundry rolling stock spares. Miscellaneous scrap. Conditions of tender and detailed information in respect of the above materials may be obtained on application to the RAILWAY SUPERINTENDENT, Famagusta, Cyprus. All the equipment is in the Station yard, Famagusta, and may be inspected by appointment on application to the Railway Superintendent. The closing date for the receipt of tenders is noon on December 10, 1952.

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and the "Londonpilen," the high-speed multiple-unit electric train of the Swedish State Railways, runs in both directions between Gothenburg Central and Stockholm.

Continental Car Traffic.—Since the introduction on the Dover-Boulogne route on June 17 of the ss. *Lord Warden*, this newest and largest car-carrying vessel of the Southern Region has carried more than 16,000 motorcars, nearly 500 coaches, and 2,000 motorcycles across the Channel.

Sale of Charles Roberts Wagons.—A circular letter dated October 30 to the stockholders of Charles Roberts & Co. Ltd. states that as the result of discussions which have taken place with the Inland Revenue Authorities, they have agreed that the sale of wagons on September 30, 1944, by Charles Roberts & Co. Ltd. to its subsidiary, Glyncorrwg Wagons Limited, did not give rise to any profit to Charles Roberts & Co. Ltd., and consequently it was unnecessary to consider further whether or not the sale was a trading transaction.

Road Accidents in August and September.—Casualties on the roads of Great Britain in September are provisionally estimated at 18,074. The number of deaths reported is 411, and the number of seriously injured 4,379. It is expected that the final figures will be well below the total for September, 1951, when there were 19,810 casualties, including 438 killed and 4,753 seriously injured. Final figures for August, 1952,

which included National Road Safety Week, show that casualties totalled 21,245, of which 438 were fatal and 5,202 serious. Compared with August, 1951, there was a decrease of 574 in the total, 32 in the killed, and 147 in the seriously injured.

Forthcoming Meetings

- November 7 (Fri.).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, C.2, at 7.15 for 7.30 p.m. "The Drummond Locomotives of the Glasgow & South Western Railway" by Mr. D. L. Smith.
- November 7 (Fri.).—Railway Club, at 57, Fetter Lane, London, E.C.4, at 7 p.m. "Some Memories of the North Eastern Railway" by Mr. E. M. Sanders.
- November 8 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, at Liverpool. "Manufacture of Switches and Crossings," by Mr. T. Goodley.
- November 8 (Sat.).—British Railways, Southern Region, Lecture & Debating Society. Visit to London Airport.
- November 10 (Mon.).—Historical Model Railway Society, at the Headquarters of the Stephenson Locomotive Society, 32, Russell Road, W.14, at 7 p.m. "The Railways of South Wales," by Mr. D. S. M. Barrie.
- November 11 (Tue.).—Institution of Civil Engineers, Great George Street, S.W.1, at 5.30 p.m. "Some Major Problems in Railway Civil Engineering Maintenance," by Mr. A. H. Cantrell.
- November 11 (Tue.).—South Wales & Monmouthshire Railways & Docks Lecture & Debating Society, at the Angel Hotel, Westgate Street, Cardiff, at 6.30 p.m. "Town Planning as it Effects the Western Region," by Mr. R. G. Henbest.
- November 12 (Wed.).—Institute of Transport, Anniversary Luncheon, at the Connaught Rooms, Great Queen Street, W.C.2, at 12.30 for 1 p.m. Speakers: Mr. A. T. Lennox-Boyd, Minister of Transport and of Civil Aviation, and Marshal of the Royal Air Force Sir John C. Slessor.
- November 12 (Wed.).—Railway Service Christian Union, 26th Birthday Meeting, in the London Midland Region Clerical Dining Hall, Cardington Street, Euston, N.W.1, at 6.15 p.m. Chairman: Mr. J. Taylor Thompson.
- November 13 (Thu.).—British Railways, Western Region, London Lecture & Debating Society, in the Headquarters Staff Dining Club, Bishop's Bridge Road, Paddington, at 5.45 p.m. "Some Aspects of Freight and Terminal Working," by Mr. H. V. Wilson.
- November 13 (Thu.).—Stephenson Locomotive Society, at 32, Russell Road, W.14, at 6.45 p.m. "Franco-Croft Locomotives," by Mr. P. M. Kalla-Bishop.
- November 13 (Thu.).—November 15 (Sat.). British Institute of Management. Autumn Management Conference at Harrogate.
- November 15 (Sat.).—British Railways, Southern Region, Lecture & Debating Society. Visit to London Airport.
- November 17 (Mon.).—Institute of Transport, at the Jarvis Hall (R.I.B.A.), 66, Portland Place, W.1, at 5.45 p.m. "Statistical Methods and Operational Research in Transport," by Mr. F. A. A. Menzler.

Railway Stock Market

Once again there has been a waiting attitude in stock markets, partly because of the disposition to assess the significance of the U.S. Presidential election result, and partly because of the belief that important decisions will be made at the forthcoming Commonwealth Conference. The main question is whether the conference will propose a wider measure of convertibility of sterling, which could do much to stimulate the export trade of the sterling area generally. The latest gold and dollar reserve figures recording further progress created a good impression, as did the marked improvement in the position of this country in the European Payments Union.

British Funds, after showing further strength, eased following news of British Transport £120,000,000 issue of 4 per cent stock (1972-77). The issue price is £95½ per £100 of stock to give a yield which compares satisfactorily with yields on other gilt-edged stocks with similar dates of redemption. Only half the issue represents new money for the B.T.C., as £60,000,000 will go to the National Debt Commissioners in exchange for the 1½ per cent British Transport stock taken up by them a year ago. The market expects good response to the new issue, lists for which opened and closed on Thursday, and looks for a small premium when dealings start.

There have been minor fluctuations in United of Havana stocks, but Havana Terminal debentures weakened further to 69. United of Havana 5 per cent (1906) debentures were 17, the 4½ per cent Cuban debentures receded to 37 and the 4½ per cent Western debentures were 19. It is believed that the capital reorganisation plan, on which it is assumed a reasonable take-over offer from Cuba may turn, will depend on whether holders of Havana Terminal debentures show the necessary majority in favour of the capital plan.

Peruvian Corporation issues have lost ground on the latest news from Bolivia, which has meant that, instead of the hoped-for rearrangement of capital, debenture holders are asked to agree to a further extension of the moratorium. Nationalisation of tin mines in Bolivia, and the uncertainty which has arisen since the change of regime in that country has made for many uncertainties, among which the future of the Bolivian exchange is vital to

the Peruvian Corporation. It is realised that the railways are of first class importance to Bolivia in transporting tin ore to the ports and earning dollars. Moreover, the course of the Bolivian exchange will be a big factor in the cost of importing necessary materials and equipment for the railways. At the time of going to press, Peruvian Corporation debentures have fallen back sharply to 56, the preference stock to 6½ and the ordinary stock to around 2½.

Antofagasta ordinary was 11½ and the 5 per cent preference stock 53, while business at 70 was recorded in the 5 per cent debentures. Costa Rica ordinary stock continued to attract more attention and changed hands around 7½. Guayaquil & Quito 5 per cent first bonds marked 28½.

White Pass & Yukon common shares have been active around \$22½ and the 5 per cent convertible debentures were £79, while Canadian Pacific strengthened to \$60; dollar stocks generally having tended to improve in front of the U.S. Presidential election result.

Manila issues again lost ground, the "A" debentures coming back to 74, and the preference shares were 8s. 1½d. Mexican Central "A" debentures were 69½, but later tended to strengthen. San Paulo 10s. ordinary units were 10s. 3d., Taltal shares 14s. 9d. and Nitrate Rails 18s. 6d.

Engineering and kindred shares recorded small irregular movements, awaiting further details of the steel denationalisation proposals and which companies are likely to re-acquire their former steel assets. Some, it is thought, would have to raise additional capital to do this, though Vickers and Cammell Laird have retained their nationalisation compensation and would probably not have to raise more capital. Vickers were 41s. 6d., and Cammell Laird 5s. shares 11s. 10½d. Tube Investments have been active around 54s.

Central Wagon have been prominent with a fresh jump to 98s. 6d. on news of a possible further capital return. Hurst Nelson were 45s., North British Locomotive 14s., and Birmingham Wagon 32s. 1½d. Charles Roberts at 22s. 1½d. reflected profit-taking despite the news that the Inland Revenue has dropped its tax claim. Vulcan Foundry were 23s. 3d., Gloucester Wagon 10s. share 12s. 1½d., Beyer Peacock 31s. 3d., and Wagon Repairs 5s. shares 12s. 9d.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week, or month ended	Traffics for week		No. of week	Aggregate traffics to date				
			This year	Inc. or dec. compared with 1950/51		Total	Increase or decrease			
						1951/52				
South & Cen. America	Antofagasta ...	800	24.10.52	£ 161,070	+	£ 18,440	43	£ 6,577,770	+	£ 1,394,660
	Costa Rica ...	281	Sep., 1952	cl,207,759	+	c73,182	13	c4,064,027	+	c360,780
	Dorada ...	70	Aug., 1952	38,470	+	1,494	35	273,997	—	14,450
	Inter. Ctl. Amer. ...	794	July, 1952	\$1,032,978	—	\$15,127	30	\$7,977,146	—	\$2,610
	Paraguay Cent. ...	274	24.10.52	G683,060	+	G327,163	16	G10,049,929	+	G4,414,509
	Peru Corp. ...	1,050	Sep., 1952	S9,688,000	+	\$1,755,000	13	\$28,850,000	+	\$4,333,000
	" (Bolivian Section)	66	Sep., 1952	Bs.15,428,000	+	Bs.1,024,000	13	Bs.47,406,000	+	Bs.6,011,000
	Salvador ...	100	Aug., 1952	£138,000	—	£3,000	9	£276,000	+	£10,000
	Taltal ...	122	Sep., 1952	\$3,351,000	+	\$902,000	13	\$8,538,000	+	\$2,234,000
Canada	Canadian National†	23,473	Sep., 1952	19,197,000	+	1,551,000	39	167,187,000	+	13,772,000
	Canadian Pacific†	17,037	Sep., 1952	13,024,000	+	1,034,000	39	113,083,000	+	8,082,000
Various	Barsi Light* ...	167	Sep., 1952	20,055	—	4,297	26	189,975	—	25,627
	Gold Coast ...	536	Aug., 1952	253,854	+	32,678	21	1,434,206	+	152,894
	Mid. of W. Australia	277	Aug., 1952	54,609	—	6,306	9	105,559	—	8,162
	South Africa ...	13,398	4.10.52	2,093,624	+	62,899	30	52,715,398	+	1,994,059
	Victoria ...	4,744	July, 1952	2,062,237	+	329,462	4	—	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1